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OF THE

ACADEMY OF NATURAL SCIENCES

OF

PHILADELPHIA.

◇

VOLUME I, 1890.

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ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

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ANNOUNCEMENT.

IT has for some time been apparent to Entomologists in this country that there was unoccupied room for a journal of Entomology devoted less to the dry details of descriptive and classificatory work and more to the news and gossip which is always of interest to entomological workers. The field of descriptive entomology is already well filled by journals published in Brooklyn, N. Y., and London, Ontario; that of economic entomology by a government publication at Washington, and the bibliographic department has received special attention at Cambridge, Mass. None of these journals allude systematically to the important work always in progress in Europe and elsewhere, nor do they by any means regularly notice such work appearing here from time to time. News of this sort is of great value to the student of Entomology even if he is near one of the large libraries; to those remote from these centres of information it can not fail to be of the utmost importance. A journal which will keep ento-

mologists *en rapport* with what is being accomplished in serials and by monographs at home and abroad, and which will also give the items of interesting news concerning explorations and explorers, collections and collectors, will, it is believed, win its way into the good graces of the insect collecting fraternity. Such a journal is only possible where its conductors are in close communication with the literature of Entomology and the sister sciences. Philadelphia, the possessor of the public libraries of the Academy of Natural Sciences, the American Entomological Society and the American Philosophical Society and several private libraries rich in works on special branches of Entomology, is generally conceded to occupy a position in this field unrivaled in America.

With this in view the Entomological Section of the Academy of Natural Sciences of Philadelphia, with the co-operation and financial aid of the American Entomological Society, have decided to publish, beginning with this number, a journal to appear about the 1st of each month, July and August excepted, under the editorial and advisory direction set forth on the cover.

Besides such scientific papers as will naturally appear in a journal published under these auspices, there will be departments of "Notes and News," "Queries and Answers," "Exchange," "Doings of Societies," etc. Under the first it will be the object of its conductors to make ENTOMOLOGICAL NEWS deserve its name in the widest sense. Under the second, so far as may be possible, insects sent for determination will be named by members of the Section and the results announced therein. The department of "Exchange" will be free to all under reasonable restrictions. And, finally, it will be the aim to give a brief résumé of the proceedings of the various Entomological Societies throughout the world.

With liberal patronage and support from the Entomologists of America and elsewhere, it is intended that ENTOMOLOGICAL NEWS shall grow into an important factor in every entomologist's work. It will be enlarged, and its scope modified or increased, as its readers may seem to demand. This issue will give but a faint idea of what it is proposed shall be the scope of ENTOMOLOGICAL NEWS. Its conductors will be glad to receive from its readers, at any time, criticisms of its work and suggestions for its improvement.

Scientific papers, news-notes, reports of societies, etc., are needed from all sources to make this journal just what its name implies, a compend of entomological news.

EUGENE M. AARON.

The Evolution of Metallic Colors in Insects.

BY T. D. A. COCKERELL.

Metallic coloring in insects cannot be a very recent development, for we have good evidence that it existed in later Eocene or Miocene times, a *Chrysis* having been discovered in the Florissant fossil-beds in Colorado. Nevertheless, probably no one would propose that the earliest insects, even of the orders now presenting metallic species in abundance were metallic. There seems to be a graduated series of colors, following in nearly direct sequence, and of these the metallic ones are by no means the first, nor do they occur predominatingly on those parts of the insect which we might suppose least specialized as regards colors.

For the present we may consider the Coleoptera and Hymenoptera alone, because in color these orders are specially related, and form a section apart from all other insects. The primitive color is probably *testaceous*, with variations to rufous, orange and yellow. The legs and under parts are often so colored where the upper parts are darker or metallic. Pale legs not unfrequently have dark joints, and this may be related to stimuli due to the motion of the parts. *Pimpla conquisitor* well illustrates the darkening about the joints, as well as the difference between the color of legs and body. Sometimes, however, these conditions are reversed, as in *Vipio coloradensis*, which is a reddish orange species with the legs mainly black.

From testaceous there is variation to dark brown of various shades—rufous-brown and black. It has been noticed how often phytophagous, and especially wood-eating beetles are brown, and there is good reason to suppose that tannin has influenced their color. Mr. Slater (Ent. Mo. Mag. 1887, p. 72) remarks on the presence of tannin in the tissues of phytophagous beetles, and M. Villon (Athenæum, 1887, p. 787) found tannin in corn-weevils. The non-metallic series of colors, then is something like this:

pale rufous, testaceous, orange or yellow,* through browns and rufous-browns to dark brown and black. The body is often darker than the legs, and the elytra of beetles are often darker than the thorax, though the reverse of this latter condition occurs in *Coccinella*, *Lacnæa*, *Dermestes*, etc.

Metallic colors seem to have their beginning at either end of the series, but it would seem that, whereas testaceous insects vary to metallic yellows and yellowish greens, black insects vary to blue. If black is highest in the non-metallic series, so we might expect that blue, to which it varies, would be higher than yellow or green in the metallic series, and this, I believe, is precisely the case. *Harpalus æneus* is sometimes dull and sometimes metallic green, or coppery. The green form, being the commonest, is regarded as the type, but no doubt the dull variety is the oldest, and the green the newest, or highest. The dull forms, then, are atavisms. The same sort of thing occurs in *Meligethes rufipes*, and a specimen was even found (Ent. Mo. Mag. 1885, p. 217) with one elytron dull reddish, and the other with a slight greenish metallic tinge. This case of partial or unilateral atavism is not unique. I have recorded a parallel case, though not relating to metallic colors, in *Dermestes fasciatus* (Entom. 1889, p. 119).

Trirhabda convergens has a variety which I call *virescens*, common at West Cliff, Col., in which the elytra, except a yellow costal or outer border, are rather dull metallic green. Here we see the tendency of the edges of the elytra to keep the original color, a very common thing with many beetles, and often a fixed specific character.

Dark species in the genus *Longitarsus* sometimes tend to become bronzed. *Crepidodera longula*, as described by Dr. Horn, is rufo-testaceous, with a greenish lustre. These are the beginnings of metallic colors at the lower end of the series. The paler the non-metallic form, the yellower its metallic variety, and here I am assuming that all metallic forms were once varieties.

In *Haltica* we have beautiful series of variations and changes from metallic golden to blue. From the distribution given by Dr. Horn (Trans. Am. Ent. Soc. 1889, p. 219, *et seq.*) it would appear that golden, green and bronzy forms are more

* And the yellow varying and changing, as it does throughout organic nature, to scarlet, but this is beside our present purpose.

prevalent in the mountains and to the north, while blue is a southern characteristic. This, however, is not an invariable rule. In *H. ignita* there is a regular geographical sequence southward from golden through green to blue. The cupreous and greenish varieties of *H. chalybea* mentioned by Dr. Horn I regard as atavisms.

Here, though, it becomes necessary to define one's notion of *atavism*. Commonly, it is said to be reversion to the state of an ancient progenitor. Some confine it to the development of half-forgotten rudiments, but to me this seems an unwise restriction. To me there are two fundamentally different kinds of atavism :

(1) Due to the development of structures now obsolete.

(2) Due to arrest of development and consequent resemblance to a less-developed or differentiated ancestor.

The first class is due to *abnormal development*, the second to abnormal *arrest of development*—two very different things. Our atavistic green *Haltica chalybea* clearly belongs to the second division. The first division is exemplified in a horse that develops extra toes.

Mr. T. H. Hall gives me a list of his varieties of *Donacia sericea*. The females are coppery, brassy and green. The males are green, violet and purple. Here we see in the female the older type of coloration to what obtains in some butterflies and other insects.

At Chislehurst, in England, I collected two species of metallic *Chrysomelæ*. *C. gœttingensis*, which lived concealed at the roots of herbage, was dark blue. *C. hyperici*, on *Hypericum*, and more exposed, is green. Here seems protective adaptation to circumstances ; or perhaps we may say that *C. hyperici* would have developed in time to blue, but natural selection prevented it. *C. gœttingensis* has beautifully pink wings, but these need not be considered in the present connection.

Dr. Hamilton found a variety of *Calosoma wilcoxi*, varying from its normal green and golden to purple-black, with the margins of thorax and elytra purple-blue. Possibly this was a token of the future color of *C. wilcoxi*. In *Carabus* we have *C. nitens* with something the color of *Cal. wilcoxi*, and the coloring of Dr. Hamilton's variety is a permanent institution in *C. violaceus*. A. Bergé found he could actually manipulate these color changes in *Carabus* by chemical means, and produce certain "varieties" at will.

Metallic-blue grades into black. *Pœcilus mauritanicus* looks black, but shines a brilliant blue-green. *Perilampus cyaneus* is blue, but *P. hyalinus*, in the same genus, is black.

Perhaps a still higher development in the metallic series is crimson. This color appears prominently in some lovely species of the genus *Chrysis* in Europe, especially the common *C. ignita*. In America nearly all the species of *Chrysis* are blue or green, but *C. martia* has the abdomen crimson. This preponderance of green and blue in American *Chrysides* is in accordance with the not-rarely observed fact that where a genus is common to Europe and America, the American forms are the oldest. But in *Cantharis*, the common European species is green, while in America we see crimson appearing on the elytra; the thorax, as in *Chrysis*, remaining green.

West Cliff, Custer Co., Col., Dec. 9, 1889.

———o———

Notes on Butterflies found at Cape May, N. J., with description of a new species of Pamphila.

BY HENRY SKINNER, M. D.

Pamphila Aaroni n. sp.—Antennæ, head, thorax and abdomen very dark brown, almost black. Primaries above tawny with blackish brown border about one-eighth inch in width. The base of the wing is shaded a darker color by the same dusky scales. The nerves of the primaries are not defined by the dark color as in *hobomok*. The tawny middle area of the wings is darker and more fiery than in the latter. The discal bar or dash is black and very distinct and well defined, although quite small in most of the specimens; running from this obliquely toward the body to the interior margin is a broken, very faint line. Secondaries are a practical reproduction of the primaries, the only difference being that the dark border encircles the entire wing, but is narrower on the anterior margin, and the neuration is well defined.

Underside.—Extending from the thorax into the wing for about one-eighth inch and covering only the lower half of the base is a sharply defined black spot, which has a pointed projection extending into the third median interspace. The middle area of the wing is tawny, but some shades lighter than the upperside. The border is about the same width as above along the lower half

of the exterior margin, but widens considerably as it approaches the apex; this border and the immaculate secondaries are of a light cinnamon-brown color. There is a brownish black streak running along the interior margin of underside of primaries. The female is larger and the colors of a lighter shade and not as well defined as in the male. On the upperside it resembles *P. hobomok*, and beneath *P. delaware*, except in color. Largest specimen ♀ expands 1¼ inch. and the smallest ♂ 1 inch. Described from 7 ♂ ♂ 1 ♀. It is no more than proper that Mr. Aaron should have one of his pets called after him, thus the name emanated. The specimens were found in company with *P. panoquin*, feeding on the flowers of *Statice limonium* var. *Americanum*, which grows in the salt meadows, but was quite rare and exceedingly wild and difficult to capture, making off in a straight line when any movement was made near it. The seven specimens represented about ten days careful collecting.

THE LIMITED RANGE OF SATYRUS ALOPE.

Without having given the subject any thought or study I had been under the impression that the greater number of species of butterflies had no fixed abode or dwelling-place, but were practically unrestricted in their range, going here, there and everywhere in search of food or pleasure. While on a tramp one day and only incidentally looking for insects, not having my net with me, I saw fluttering in and around a small clump of holly bushes a beautiful specimen of *Satyrus alope*, which evidently had only been a short time from the chrysalis; it alighted, and I endeavored to secure it by taking hold of the tips of the wings between the thumb and index finger, when it violently flapped them and left the tips as a souvenir. This spot and its neighborhood proved an excellent collecting-ground, and I subsequently visited it frequently, and each time saw the same *alope* in the same clump of bushes. I saw other specimens of the same species here which I learned to recognize from peculiarities in the way they were rubbed, etc., as most of the specimens at this time were badly flown. I made this species the subject of some study at the time, and came to the conclusion that it undergoes its transformations and lives its entire life in a very restricted area. A form with one ocellus is found at Cape May, which Mr. Edwards thinks is not *pegala*, but a variety of *alope*.

EGG-LAYING OF TERIAS LISA.

The female *Terias lisa* deposits its eggs in a very systematic and uniform manner. It moves about in a fluttering way so characteristic of butterflies when ovipositing, and lights on the tip of the leaf *Cassia nictitans*, facing toward the stalk of the plant and walks up the leaf until the end of the abdomen is midway between the end of the leaf and its junction with the main stem and then deposits the egg on the upperside of the stem or mid-rib that runs between the leaflets. It moves with great care and precision, as though such nicety were very necessary. The egg is thus placed at what might be called the exact centre of the leaf. There seems undoubtedly to be design in this, as the eggs are exceedingly frail and delicate, and if deposited on the leaflets they would probably be injured or crushed when they close up tight at night. I did not notice whether the eggs were placed between the junctures of two sets of leaflets on either side, but I think such was the case. When the females are confined over the plant the eggs are scattered about indiscriminately either on the *Cassia*, or anything else near it. They were found ovipositing here in the last week of August, and at Westville, N. J., in September.

THE FIRST STAGES OF PAMPHILA PANOQUIN.

August 22d, *Pamphila panoquin* was exceedingly abundant on the meadows flying about and feeding on the flowers of *Statice*. They were fine, bright specimens. This species does not seem to have as much of the jerky flight as most species of the genus, but flies generally in a straight line. It is readily caught when feeding on the blue flowers, which attract it greatly, but when in the net is exasperatingly restless, and usually manages to denude its thorax of hair. A female deposited a few eggs in the paper in which it was confined, not having been pinched hard enough to cause immediate death. One hatched August 27th, and the young larva was about one-eighth inch in length and was different from any Hesperid larva I had ever seen in being cream-white in color. Under the microscope it showed six or eight small point-like warts on each segment. The head was of a light coffee color darker toward the front. It entirely devoured the egg shell. The eggs were of the usual form in the genus and of a pale greenish white color. I tried to rear it on lawn grass, which it absolutely

refused to eat, and thus suicided. The remaining eggs I sent to Mr. W. H. Edwards, but they failed to hatch. The female *panoquin* differs from the other sex in being larger, several shades darker in color, and in having the maculations on the superior wings much more sharply defined and brighter in color. There is a prominent light colored streak on the inferiors nearly one-quarter inch in length, which is either wanting or only indicated in the male.

A colony of full grown *Junonia cœnia* larvæ were found feeding on *Gerardia tenuifolium*, which, as far as I know, is a new food-plant for the species.

———o———

NOTES ON COLEOPTERA.

BY GEO. H. HORN, M. D.

From the remarks of Mr. Fauvel (Revue Ent. 1889, p. 142) it is evident that two species of *Cryptohypnus* have been confounded under one name by many of the Coleopterists of Europe, notably by Dr. Candéze, whose work has been accepted as authority on the family ELATERIDÆ for many years. It is pardonable in students on this side of the Atlantic if they are found guilty of an error due to, or rather copied from, those who should be final authority on the species of the fauna around their own homes.

C. pulchellus Linn., *exiguus* Rand., *guttatulus* Mels.

The above line appears in Dr. Hamilton's paper on the Coleoptera of the sub-arctic regions common to both hemispheres.

From the remarks of Fauvel two species have been confounded under *pulchellus*, which have a great superficial similarity ; these are :

C. pulchellus Linn.—Thorax with posterior angles sinuate, divergent and acute at the apex, the striæ of the elytra obsolete at the tip.

C. sabulicola Boh.—Thorax with posterior angles arcuate, rather incurved, obtuse at apex, elytra deeply striate, the intervals subcostiform.

Any one who will read the descriptions of Randall and Melsheimer, which are remarkably good, will see that we have in our fauna *pulchellus* as described by Fauvel.

C. quadripunctatus Fab., does not occur in our fauna, although we have a representative species in *perplexus* Horn, which has a longer thorax and the humeral elytral spots only.

C. dermestoides Hbst. var. *quadriguttatus* Lap.—This species is now for the first time recorded in our fauna. It is a small species, thorax rugulose, especially in front; median line smooth, but linear. Elytra with four yellow spots, one on each humeral angle, the other on the middle line of the elytra near the apex.

Specimens are in my cabinet from Nova Scotia, Maryland (Lugger) and Washington, D. C. (Ulke).

The true *dermestoides* has no elytral spots, or very faint indications of them. Three such specimens are known to me from Nevada, northern California and Los Angeles. On the other hand three specimens from the State of Washington are intermediate in the fact of having a well-marked apical spot but no humeral.

C. riparius Fab., is said, by Candéze, to occur in our polar regions. He does not state his grounds for this and the species has not been recognized by us.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

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A ROYAL ENTOMOLOGIST.—Recently the Grand Duke Nicholas, of Russia, was elected a corresponding member of the Acad. Nat. Sci. of Philadelphia, in recognition of his services to Entomology. He is one of the few men of science of royal rank, and is editor and part writer of one of the finest works of recent years on Lepidoptera. The work was commenced in 1884, and at present consists of five handsome volumes, the last published recently. They are profusely illustrated in the most sumptuous manner by the best artists of Europe. He has sent out several collecting expeditions under a guard of Cossacks, which turned up many new and rare species. The work is entitled "Memoirs sur les Lepidopteres rediges," par N. M. Romanoff (Grand Duke Nicholas), of St. Petersbourg. The first article is "Les Lepidopteres de la Transcaucasie," by

N. M. Romanoff, and is continued in the succeeding volumes. He has a collection of Lepidoptera, and has corresponded and exchanged with Dr. Strecker, of Reading, who has received many fine specimens from him.

H. Skinner.

Philadelphia's "White Pasha."—Dr. W. L. Abbott, an ornithologist and entomologist, well known in Philadelphia, is making quite a reputation in East Central Africa as an explorer and naturalist. Before leaving this country he presented his fine collection of birds to the Philadelphia Academy. He also possessed a fine collection of Lepidoptera, mostly local species. Dr. Abbott is a life member of the Academy of Natural Sciences, a graduate of the Towne Scientific School and the Medical Department of the University of Pennsylvania, and member of the Royal College of Physicians and Surgeons of England. He collected birds in the far West in 1881, and birds and insects in Hayti in 1883, and presented the latter to the American Entomological Society; among these was a new species of *Anartia* and other rarities. He was with Herr Ehlers, who recently made the first successful ascent of Mt. Kilmanjaro, the highest mountain in Africa. Dr. Abbott did not reach the summit, but broke down at 17,000 feet with heart dilatation, as he was convalescing from the African fever. More birds have been collected by him than by any one who has visited the Kilmanjaro region (550 species). At last accounts Dr. Abbott was preparing a large expedition into Masai land. Stevens, the round-the-world bicyclist, alludes to him quite frequently in his letters to the *New York World*. He describes the natives as singing his praises as follows:

"Our Wanyamwezi, marching together in the same regular order as yesterday, struck up a vociferous and truly African refrain, while the rest of the caravan sung the chorus. No matter how hot the day or how tired his limbs, the porter seems always ready to split his throat in singing and shouting. For this or for dancing he seldom gets too tired. The Wanyamwezi are noted shouters. They commenced a song in praise of the white man, and many joined in heartily.

"Great is the mzunger! Woh! woh!" sung the melodists from the Land of the Moon.

"Woh! woh! woh! the Mzu-u-gu-u-u! woh!" chorused the caravan.

"The Mzungu is great! woh!"

"Woh! woh! woh! the Mzu-u-g-u-u! woh!"

"Great is the Merikain! (Dr. Abbott, who is widely known by that proud title among the natives of East Central Africa) woh!"

"Woh! woh! woh! the Merikain, woh!"

"Our food is rice and fish! woh!"

"Woh! woh! woh! rice and fish!"

"Woh! our food is rice and fish!"

"Great is the Mzungu! woh!"

"Woh! woh! woh! the Mzungu woh!"

"He gives us rupees! rupees!"

"Woh! woh! woh! he gives us rupees! rupees! woh!"—H. Skinner.

PHYTONOMUS PUNCTATUS FAB.—The appearance of this weevil in this vicinity for the first time and in numbers, is one of the remarkable incidents in Coleoptera occurring during the year just ended. The first specimens were taken about the first week in May and the last the early part of November. At irregular intervals it appeared very abundantly, and but few days passed without at least one or two specimens being observed. It is singular that, when this insect makes its appearance in any locality, it is always in numbers. Mr. Reinecke, of Buffalo, in August, 1884, recorded an invasion of this species at that place, in the *Buffalo Freie Presse*, which was reprinted in the "Brooklyn Bulletin" of September, 1884.

CHARLES LIEBECK.

A COCOANUT PEST.—The United States Consul at Santiago de Cuba has made a report to the Secretary of State in regard to a mysterious disease prevailing in that country which at one time threatened to annihilate all the plantations producing cocoanuts for market and export. Small shipments of cocoanuts are constantly leaving Santiago for the United States, and the Consul says he has sought to discover the origin of the disease which has affected them. Opinions of scientists differ as to the cause and nature of the disease. The Consul says that it has been at last definitely ascertained that the destroyer of the cocoanut tree is an insect of diminutive size, barely visible to the naked eye, and probably a Coccid. Prof. Gundlach, of Havana, recommends that all cocoanuts received in the United States be dipped into boiling water upon arrival, and that the bags they are shipped in be destroyed. E. M. AARON.

EREBIA EPIPSODEA var. *Sine-ocellata* described in Can. Ent. Dec., '89, p. 239, by Dr. Henry Skinner, the author informs us, is probably a synonym of *Epipsodea* var. *Brucei* described in a few words by Mr. Elwes, Trans. Ent. Soc., London, June, 1889, p. 326. The latter description is as follows: "minor absque ocellis fascia rufa fere obsoleta," habitat Summit County, Colorado, 12,000 feet altitude. It is but justice to Dr. Skinner to state that his description was in the hands of the editor of the "Canadian Entomologist" at least six weeks before Mr. Elwes' description was received at the libraries in Philadelphia. E. M. AARON.

HOME-MADE CORK.—Mr. F. M. Jones, of Wilmington, Del., describes a very good lining for insect boxes as follows: "I made a rough wooden press and procured about a barrel of the fine cork which white grapes are packed in, mixed it with weak glue and pressed it into sheets between white paper. The sheets when pressed must be about three-eighths of an inch thick to turn out properly. It answers very well and costs almost nothing." H. SKINNER.

RARE BEETLES ON THE NEW JERSEY COAST.—Among many good things taken on Brigantine Beach, N. J., just after the September storm, by which the whole island, except a few of the coast sandhills, was submerged, may be specially noticed:

Cafius sericeus Holme, two ♀ examples. This fixes an American locality for and decides in favor of the successful colonization of this European species. It appears slender and delicate compared with the abundant *vistriotus*.

Cryptobium pusillum Lec., two examples, ♂ and ♀, .25 inch. long. The only specimen seen by Dr. Horn, when preparing his *Cryptobium* paper, was the type in the LeConte collection, a ♂ from the sea-shore of Long Island. N. Y. The last ventral segment of the ♂ has a parallel notch from apex to base, and a contiguous depression on the apex of the preceding, as if nature had intended to continue the slit; the last ventral of the ♀ is rounded.

Cryptobium lugubre Lec., three examples, unfortunately ♀. Having been described from Florida, it is mentioned here to record the locality.

Quedius brunneus Mann., and *Actobius nanus* Horn, were taken in some abundance. The Coleoptera were for a time very much concentrated, taking refuge under the trash swept up around the sandhills. The New Jersey coast is rich in small Coleoptera, apparently neglected by neighboring collectors, or at least unrecorded. JOHN HAMILTON.

Entomological Literature.

BULLETINS OF THE ILLINOIS STATE LABORATORY OF NATURAL HISTORY, Vol. III.

Article V.—*A Descriptive Catalogue of the Phalangiinæ of Illinois* by Clarence M. Weed, M. Sc. In a pamphlet of 20 pp. the author tabulates the genera *Liobunum*, *Oligolophus* and *Phalangium*, describing in them eight, one, and one species respectively. Three figures are given in the text. *L. elegans* and *L. politus* are described as new.

Article VI.—*A partial Bibliography of the Phalangiinæ of N. America*, by the same author, enumerates the general articles and follows with a reference list of the species. Students of this little-known group so commonly called "daddy-long-legs," will find these papers invaluable guides. E. M. A.

MASSACHUSETTS AGRICULTURAL COLLEGE. Bulletin No. 5, July, 1889. *Household Pests*, by Charles H. Fernald, 10 pp. 6 wood-cuts [Dec., 1889.] Carpet beetles, clothes moths ants and bacon beetles are treated of and their habits and remedies described in a way that renders the author's meaning clear to any reader.—E. M. A.

AGRICULTURAL EXPERIMENT STATION OF MINNESOTA. Bulletin No. 8, July, 1889. *The Rocky Mountain Locusts in Otter Tail County, Minn.*, in 1889. [Otto Lugger, Ph. D.] 20 pp., 9 cuts, 2 plates, 53 figures [Dec., 1889.] A very full inquiry into the cause, effects and prevention of this visitation for the past season.—E. M. A.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Twelve names, if possible, will appear in each issue of NEWS, according to number. Address packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

H. MEESKE.—1, *Cicindela 16-punctata;* 2, *Cicindela vulgaris*, var.; 3, *Macrodactylus subspinosa;* 4, *Cicindela pusilla*, var. *cyanellus;* 5, *Epitragus canaliculatus;* 6, *Necrophorus marginatus;* 7, *Chrysochus auratus;* 8, *Trox sonoræ;* 9, *Hippodamia convergens;* 10, *Chrysomela scalaris.*

E. WILKINSON.—2, *Carpophilus pallipennis;* 4, *Sphærophthalma orchis;* 5, *Bombus pennsylvanicus* ♂; 6, *Orthosoma brunneum;* 7, *Necrophorus americanus;* 8, Solpugidæ (belongs to); 9, *Allorhina nitida?* 10, *Eleodes longicollis;* 11, *Hippomelas cælatus;* 12, *Psiloptera dilaticollis.*

CHAS. FUCHS.—1, *Eleodes hispilabris;* 2, *E. carbonaria*, smooth var.; 3, *E. quadricollis* ♀; 4, *E. obsoleta*, var.; 5, *E. carbonaria*, var. *soror;* 6, *E. extricata;* 7, *Discogenia marginata;* 8, *Eleodes cordata;* 9, *E. consobrina;* 10, *E. cordata;* 11, *E. parvicollis;* 12, *E. obscura.*

G. D. B.—1, *Catocala concumbens;* 2, *Ctenucha virginica;* 3, *Micrœcælia obliterata;* 4, *Heliophila unipuncta;* 5, *Hadena sputatrix;* 6, *Agrotis messoria?* 7, *Plusia contexta;* 8, *Eustrotia carneola;* 9, *Hypena* sp.; 10, *Tetracis crocallata;* 11, *Pyrophila pyramidoides;* 12, *Metanema quercivoraria.*

From Haddonfield, N. J., wingless females of a Geometrid moth, perhaps genus *Anisopteryx.*

Entomological Literature.

BULLETIN FROM THE LABORATORIES OF NATURAL HISTORY OF THE STATE UNIVERSITY OF IOWA, vol. ii, No. 1, contains the continuation of the monograph entitled, "The Pselaphidæ of North America, by E. Brendel, M.D., and H. F. Wickham (concluded), 85 pp., 3 plates, 63 figs. Full descriptions with synoptic tables of the species are given.

THE ENTOMOLOGIST, November, 1890.—Additions to the British List of Deltoids, Pyralids and Crambi since 1859 (with plates), by Richard South. The sexes of LEPIDOPTERA, by T. D. A. Cockerell. Contributions to the Chemistry of Insect Colors, by F. H. Perry Coste. Entomological notes, captures, etc. Doings of Societies.

THE ENTOMOLOGIST'S MONTHLY MAGAZINE, November, 1890.—How do Coccids produce cavities in Plants? by W. M. Maskell. Notes on the LEPIDOPTERA of Digne (Basses Alpes), by A. H. Jones. Entomological

notes from Aden and Colombo, by J. J. Walker. Notes concerning Psocus *quadrimaculatus* Latreille, of which *Ps. subnebulosus* Steph. is a synonym, by Robert McLachlan. Aculeate Hymenoptera collected by J. J. Walker at Gibraltar and in North Africa, by Edw. Saunders. Notes and Captures, Doings of Societies, etc., finish the number.

Transactions of the Royal Society of South Australia vol. xiii, pt. 1.—Descriptions of Australian Lepidoptera, pt. 1, by E. Meyrick. Further notes on Australian Coleoptera, by Rev. T. Blackburn.

A Contribution Toward a Knowledge of the Mouth Parts of the Diptera, by Prof. J. B. Smith (from Trans. Am. Ent. Soc.). This is an interesting essay of twenty pages with twenty-two figures; very little has been written on the anatomy of the mouth parts of Diptera, and Prof. Smith's paper is an important addition to the literature of the subject. He states that he studied each organ in its entirety, in its relation to others, and in its development, and that the studies were morphological rather than anatomical.

The Entomologist's Monthly Magazine, December 1890.—Notes on the British species of the genus *Anthonomus*, with a description of a species new to Britain, by Rev. Canon Fowler. Hymenopterological notes, by P. Cameron. Description of a new species of the genus *Phanæus*, by B. S. Nevinson. Trichoptera observed in the Exmoor District in Autumn, by R. McLachlan. Observation on some British and exotic Coccidæ, by J. W. Douglas. Descriptions of two new species of *Euplœa* from the South Sea Islands, by Hamilton H. Druce. Great flight of *Culex*, *Tipula* and *Tetramorium* in New Zealand, by W. W. Smith. Meyrick's Pyralida of Europe, by Prof. C. H. Fernald. *Trypeta bigelovia* n. sp., by T. D. A. Cockerell. On a new species of *Tomoderus* from Japan, by G. C. Champion. Note on the genus *Dischidus*, id. *Bidessus unistriatus* in East Norfolk, id.; *Anisotoma triepkei*, etc., at Aviemore, by R. W. Lloyd. *Danais archippus* at Eastbourne, by A. H. Clarke. *Chœrocampa nerii* near Dartmouth, by Henry F. Owen. Description of the larva of *Phoxopteryx upupana*, by B. A. Bower. Insects in the Scilly Isles, by C. W. Dale.

Bulletin No. 11, November, 1890, Iowa Agricultural Experiment Station. The Potato Stalk Weevil (*Trichobaris trinotata*). The Apple Curculio (*Anthonomus 4-gibbus*). A new Currant Borer (*Hyperplatys aspersus*). The life-histories and remedies against these injurious insects are given (illustrated). These entomological articles are by Prof. C. P. Gillette.

We have received the following from Prof. C. V. Riley, U. S. Entomologist: Insecticides and Means of Applying them to Shade and Forest Trees, by C. V. Riley, M.A., Ph.D. The Insectivorous Habits of the English Sparrow, by C. V. Riley. Insects Affecting the Hackberry (various species of *Celtis*), by C. V. Riley. These entomological papers are all from various government publications.

Exchanges.

[Entomologists are invited to make free use of this page for the purpose of bringing their duplicates and desiderata before the insect-collecting world. Cards of four lines, with four changes per year, will be allowed without charge. Beyond that, insertions will be charged at regular advertising rates.]

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North American botanical specimens offered in exchange for butterflies and moths—I. C. Martindale, Camden, N. J.

The LEPIDOPTERA of the world offered in exchange for North American MACROLEPIDOPTERA.—Henry Skinner, 716 North 20th St., Philada., Pa.

LEPIDOPTERA. Cocoons of hybrids, ex *Ceanothi* et *Cecropia;* also *Gloveri* et *Cecropia*, besides set specimens of North American species. Lists exchanged.—Emily L. Morton, Newburgh, N. Y.—New Windsor Delivery.

HESPERIDÆ of the world desired in exchange for the same and other rare butterflies. Good cash prices for rare species. Correspondence solicited.—E. M. Aaron, Academy Natural Sciences, Philadelphia, Pa.

AMERICAN LEPIDOPTERA, especially from West and North desired for purchase or exchange.—H. J. Elwes, Preston, Cirencester, England.

HEMIPTERA desired in exchange, especially in HOMOPTERA, either named or unnamed. Correspondence solicited.—E. P. Van Duzee, Grosvenor Library, New York.

A limited number of *Neonympha Mitchellii* French, n. sp., for exchange. Send lists to Irving N. Mitchell, Fond du Lac, Wisconsin.

PAMPHILA AND CATOCALA. Good value in cash or exchange for perfect specimens.—Philip Laurent, 1306 Chestnut St., Philadelphia, Pa.

Dragonflies (*Odonata*) wanted from all parts of the world. State what is desired in return.—Ph. P. Calvert, Entom. Section, Acad. Nat. Sci., 19th and Race Sts., Philadelphia, Pa.

The undersigned would be pleased to hear from any one interested in the collection and study of Coleoptera of North America, either to correspond or exchange specimens. Will collect all orders in this vicinity and exchange for Coleoptera of other localities.—Charles Liebeck, Entomological Section Acad. Nat. Sciences, Philadelphia, Pa.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

VOL. I. FEBRUARY, 1890. No. 2.

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May Moths in Northern New Hampshire.

BY ANNIE TRUMBULL SLOSSON.

Few entomologists seem to know much of the early spring in Northern New England and its opportunities for collecting. For the last two or three years I have gone to Franconia, N. H., on or before the middle of May. In an ordinary season the snow at that date still lies in the woods, and the mountains often look quite white. But there are plenty of moths.

I have found, on May 15th, *Corycia vestaliata* Guen. and *C. semiclarata* Walk. flying in such numbers over the fields and on the edges of woods that they looked like white flower petals fluttering in the breeze. With these, and as early, fly the pretty species of *Lobophora*, *L. vernata* Pack. and *L. geminata* Pack. About the same date *Lozogramma defluata* Walk. and *L. detersata* Guen. start up before you as you walk in meadow or open

woods to fly rapidly a few feet and drop again suddenly to the ground. *L. lactispargata* Walk, is generally a little later. On 18th or 20th comes the early brood of *Selenia kentaria* G. & R. No one who has not seen these early specimens at this season can know anything of the real beauty of this species. These first comers are larger and infinitely deeper and richer in tint than the later ones, and there is a soft, tender bloom upon the surface of the wings which is as evanescent as lovely, and is quite lost in drying. Before the 20th *Eufidonia notataria* Walk., *Fidonia truncataria* Walk. and *Ematurga faxonii* Minot, are plentiful.

All these are day flyers, of course. The nights at this season are still very cold, and often frosty, but it is marvellous to see how many noctuids are moving about and are attracted to sugar and to light. Two years ago, between May 16th and 20th, *Homoptera edusa* Drury, was in great abundance, flocking at night to our sugar-stations and also to our lanterns on the piazza. We have often taken more than a hundred of this species with its two varieties, *lunata* and *saundersii*, in an evening. With them came also *H. unilineata* Gr., *H. woodsii* Gr., *H. benesignata* Harv., *Zale horrida* Hüb., and the three forms of *Ypsia undularis* Drury. *Tæniocampa incerta* Hüb. is one of these earliest moths and very abundant. By the end of the month some of the *Bombycidæ* make their appearance; the Spilosomas—*virginica* and *prima*—*Halisidota maculata* Harr., *H. tessellata* A. and S., *P. isabella* A. and S., *L. acræa* Drury, *Arctia virguncula* Kirby; *Notodonta stragula* Gr.; *N. basistrieus* Walk. *Lophopteryx elegans* Strecker; *Nerice bidentata* Walk. and many others. And you must remember that this is not in the May of Pennsylvania, or even that of southern New England, but in the tardy cold spring of the northern hill country. There the snow often lies upon the ground until June; the streams are icy cold, and all vegetation exceedingly backward. Upon what do these early subalpine moths feed? There are almost no blossoms at the season of which I speak. From under the snow the *epigæa* lifts a few pink buds, and in a favorable, sunny May, *viola rotundifolia*, *v. selkirkii* and a few—a very few—other hardy little plants open tiny blossoms.

I must not forget to say that it was in the last week of May, in a very backward season, while snow lay in heaps and drifts, in sheltered, shady spots, that I took at light my fine specimen of *Phragmatobia assimilans* Walk. This beautiful insect known only

for many years by the worm and damaged types in the British Museum owes, doubtless, its rediscovery by me to my early visit in that backward season to the New Hampshire hills.

Random Notes on Lepidoptera.

BY HENRY SKINNER, M. D.

Determination of Sex of the Cocoons of Cecropia.—One winter some time ago I collected a large number of *Platysamia cecropia* cocoons and noticed quite a difference in their superficial appearance, and I determined to see, if I could, what it meant. I had suspected from some previous observations that the two kinds represented the different sexes. I divided the cocoons accordingly, putting them in separate boxes, and found, subsequently, that the cocoons in one box produced males and the other females. I separated them by the following characters: the male cocoon is much more compact, lighter in color, and not nearly so baggy as the female and much longer in proportion to its width. A typical male cocoon is three and three-quarters inches in length and one and one-eighth in width, while the female cocoon is but three and one-eighth inches in length by two inches in width. The male cocoons are nearly always found high on the stalks (elder) and the females close to the ground hidden by long grass and dead leaves or other matted material where the elder stalk leaves the ground. The difference in the construction of the two cocoons is very striking, the wrinkled, baggy character of the female ones is noticed at once. There may be some exception, but I think by taking the sum of the characters the sexes may be picked out at once without any difficulty, especially in the cocoons found on elder bushes. The above facts are also true of the other species in the genus *Platysamia*, but in a lesser degree. I have separated the sexes of *ceanothi* in the same way.

A UNIQUE COLLECTING-FIELD.

The Eastern Penitentiary is situated at 22d and Fairmount Avenue, Philadelphia, in the heart of the city, and is surrounded by a stone wall about 42 feet high. The corridors run from a common centre like the spokes of a wheel, thus leaving some ground between them. Most of the cells have a small yard at-

tached in which the prisoner is allowed a few hours each day for exercise. Some time ago while on a professional visit to some of the inmates I was mortified to find a lepidopterist, although interested in his captures, which were all made in the yard attached to his cell. The cell yard was enclosed by stone walls 14 by 17 feet and 11½ in height. In this small space he had caught during the past summer eighteen species, as follows: *Papilio asterias, turnus, glaucus, ajax; Pieris rapæ; Colias philodice; Danais archippus; Grapta interrogationis; Vanessa antiopa, atalanta; Ancyloxypha numitor; Eudamus tityrus; Philampelus satellitia; Sphinx celeus; Hemaris thisbe; Catocala obscura, ilia; Cicada* sp.

P. ajax is a great rarity here. I have never seen but one in the city limits, and *Catocala obscura* is also rare. Most of the species were represented by a number of specimens.

AN ERROR CORRECTED.

Mr. Wm. Beutenmueller in his article on the preparatory stages of *Callosamia angulifera*, Ent. Amer. Vol. V, No. 11, p. 200, says "the cocoon can only be separated from that of *Promethia* by its larger size." The differences in the cocoons and the habits of the larvæ of the two species in my mind are the most striking proofs of the distinctness of the species. The full grown *Promethia* caterpillar takes great care to securely fasten its cocoon to the twigs of the tree and hangs by a thread of tightly-woven silk, which has been spun over the stem of a leaf and the dried leaf itself from the outer covering of the cocoon. The *angulifera* caterpillar either spins its cocoon in the leaf and when the leaf drops in the fall the cocoon falls to the ground in it, or crawls down the trunk of the tree and spins its cocoon in the grass, or fastens it to a dead stick under the tree. The *angulifera* cocoon is oblong, being one inch and a half in length by five-eights of an inch in width, and never has the silken prolongation as in *Promethia* (see "Psyche," Vol. V, p. 261), and is not obscured so much by the curled leaves, and has a more marked appearance.

———o———

Siphonophora or Nectarophora?

BY CLARENCE M. WEED.

The fact that the aphidid genus *Siphonophora* has recently been replaced by *Nectarophora*, does not seem to have received as

much attention from entomologists as it deserves, and ENTOMOLOGICAL NEWS may perhaps be utilized to present a brief statement of the case. The change was made by Prof. O. W. Oestlund in his "Synopsis of the APHIDIDÆ of Minnesota (Bulletin No. 4 of the Geological and Natural History Survey of Minnesota, p. 78)," where in using *Nectarophora* he says :

"It is with some reluctance that I propose to replace a name that has already become so familiar and extensively used as that of *Siphonophora*. But *Siphonophora* as a generic term was already appropriated for the *Myriapoda* before Koch made use of it in the APHIDIDÆ; and it is also used to denote an order of the oceanic HYDROZOA, and should, therefore, according to practice, be replaced by one not already occupied."

Prof. Forbes informs me that Marschall's "Nomenclator" gives the date of the use of *Siphonophora* by Brandt for a genus of MYRIAPODA at 1886, and that of Koch for HEMIPTERA at 1855.

It seems to me that in questions of nomenclature entomologists at present cannot do better than follow the code of the American Ornithologist's Union, in accordance with canon xxxiii, of which the use of *Nectarophora* would be justified. This canon reads as follows :

"A generic name is to be changed which has been previously used for some other genus in the same kingdom; a specific or subspecific name is to be changed when it has been applied to some other species of the same genus, or used previously in combination with the same generic term."

———o———

Notes on Smerinthus Astylus Drury.

BY FRANK M. JONES.

As but little is known of the life-history of this insect, the following notes may be of interest; unfortunately, I could not obtain a full description of the larva through all its changes :

June 16, 1889.—Found ♂ and ♀ on a twig of High-bush Huckleberry. Here and there on all the Huckleberry bushes hung a few dry leaves; the leaves, when dead, turn cinnamon-brown, and the two moths, as they sat motionless on the twig, so closely resembled one of these clusters of dry leaves, both in color and outline, that I did not recognize them as living insects for some seconds after seeing them.

June 16 to 19.—♀ laid 151 smooth, glossy, pale greenish yellow eggs, somewhat flattened, 2 mm. greatest diameter.

June 23.—Some of the eggs changed to dirty white, and the young larvæ could be seen within.

June 24.—Eggs commenced to hatch; young larva pale greenish white, 6 to 7 mm. in length; head and thoracic segments large; caudal horn 1.5 mm. in length, reddish brown, darker at base and tip; two spines at tip, making it appear pronged; horn usually straight, or nearly so, but in some cases much curved; in this moult it points backward.

July 28.—Larva full grown; length 38 mm.; green, with yellow granulations; seven yellow, oblique, lateral stripes, the last reaching base of caudal horn; an indistinct, yellow, longitudinal, lateral line to fifth segment, and continued faintly; a variable number of red dorsal spots or blotches, two on a segment; some have but two small red spots on the third segment, and on others red is the predominating color of the dorsal region; caudal horn straight, pale green; two thorns at tip; points forward; several days before pupating the green of the dorsal region fades to a dull yellow.

August 11.—First larva pupated; although provided with a plentiful supply of light, moist earth, none of the larvæ attempted to enter the ground, but pupated upon the bare soil. If this is their habit in nature, it may in part account for the rarity of this insect, but I have noticed the same thing with other and commoner species when confined in breeding-cages, and its rarity is probably due to some other cause.

———o———

Notes on a few Virginian Dragonflies.

BY PHILIP P. CALVERT.

Some months ago Mr. Wm. D. Richardson, of Fredericksburg, Va., sent to me, for identification, a few dragonflies which he had taken in Spottsylvania County in that State. These specimens may interest some readers as adding new data for geographical distribution. Excepting *Æ. heros*, none of these species have been recorded from Virginia before, although *P. trimaculata* was known to inhabit the United States everywhere east of the Rocky Mountains. The notes which Mr. Richardson sent with the specimens are enclosed in quotation marks.

1. *Lestes forcipata* Ramb. (Selys, 1862) ♂ "July 3, 1889, near a pond."

This species is the *hamata* of Dr. Hagen's Synopsis of 1861.

2. *Anomalagrion hastatum* Say, ♀ "July 12, 1889, near a pond."

3. *Enallagma aspersum* Hag., ♂ "July 12, 1889, near a pond."

4. *Æschna heros* Fabr., ♂ "June, 1889; caught while flying near a stable, about a thousand feet from a pond, late in the evening."

5. *Celithemis elisa* Hag., ♂ "July 3, 1889, near a pond."

6. *Plathemis trimaculata* De Geer, ♂ "June 18, 1889, near the borders of a small pond about one-quarter of a mile from Fredericksburg."

7. *Libellula quadrupla* Say, ♀ "1888, border of a small pond near Frederickburg."

The most southern locality known to me for this species is Greenville, S. C., from which I possess a female taken by my friend, Mr. Lawrence O. Patterson.

8. *Diplax vicina* Hag., ♀ "June 18, 1888, flying over a pond."

NORTH AMERICAN HESPERIDÆ.

BY EUGENE M. AARON.

No. 1.—ERYCIDES URANIA and EUDAMUS HESUS.

It is the purpose, in this series of short papers, to give descriptions of new or little-known species of North American HESPERIDÆ, with notes that will be calculated to aid students in the study of this neglected Family. There are a few species of HESPERIDÆ which have never been described, the identification of which depend on illustrations only to be found in rare and costly works. Others are inadequately described or, in the opinion of the writer, confounded with older species, and still others are as yet undescribed. Where it seems to be desirable to elucidate the text, plain drawings will be furnished.

Erycides Urania, West. [Plate I, fig. 1.]*

West.-Doub.-Hew., Gen. Di. Lep., p. 510, No. 7, pl. 79, fig. 1 (1852).

Though figured, in 1852, in the superb work cited above, this striking species has never been described in the publications of its

* Plate I will appear in a future number of NEWS.

native land nor abroad. As the "Genera of Diurnal Lepidoptera" is an extremely rare work—it is doubtful if more than fifteen copies are to be found in the United States—I have thought it well to describe and figure it at this time, so that hereafter it may be easier for the American student of the HESPERIDÆ to identify the species as it turns up in collections.

The only textual reference to this species in the "Gen. Di. Lep." is in a list of the species of the genus; the student is left to the very accurate figure on plate 79 for the determination, and there, very unwisely as it seems, only the upper side is figured.

The description which follows is made from the figure by Mr. Hewitson, and from a fair series of specimens from Texas and Mexico:

Expanse 2 to 2⅜ inches. Ground color above black on both wings; banded and spotted with bright green or blue. On the primaries this banding in most examples is caused by the fact that nearly the whole surface is covered with a dense coat of scales of bright green, which, being separated by the black bordered nervures, take on the form of longitudinal bands; in a few specimens, however, the apical area is but slightly sprinkled with green and the whole outer half of the wing appears black or nearly so. A group of translucent sub-apical spots consist of three constricted points along the costal margin, one larger below the outer of the three, and a much larger quadrate spot centrally below the four. Two translucent bands follow these spots internally, the first bifid, short, hardly more than an elongated spot, the inner one crossing the median area much longer and made trifid by two nervures. The color of the markings on the secondaries is much brighter, and towards the anal angle of a deep azure-blue tint in some examples. From the base three streaks diverge towards and stop abruptly on the median area, the upper of these is shorter than the others to make room for the bifurcate series of spots on the outer area of the wing. These spots—four in the inner limb and seven in the outer are placed in the form of a written letter *r*. On some examples there is a faint indication of another streak, longer than the three others running parallel to the abdominal margin.

Beneath, color and markings a reproduction of the upper surface, save that while the black is not so dense on the primaries, it is deeper and more velvety on the secondaries. The green atoms on the primaries are fewer; on the secondaries they are brighter, and the bands run all the way to the costal edge.

Thorax above black, with tufts of green hairs, beneath marked to match the secondaries. Abdomen black, with green hairs and annulations of the same color. Head and palpi above green spotted, white beneath. Antennæ black, dark cinereous at tip. Emarginations, above and below, notched, white.

Habitat.—Mexican boundary of Texas; Mexico; Central Am.

Eudamus Hesus, West. [Plate I, fig. 2.]

Goniloba Hesus, West.-Doub.-Hew. Gen. Di. Lep. p. 573, No. 40, pl. 78, fig. 5 (1852).

As in *Erycides Urania*, this species has never been described, but has always been accepted on the strength of the excellent figure of the upper surface, the lower surface not having been represented. The description which follows is made up from this figure, and a small suite of specimens; the species is rather rare in collections.

Expanse 2¼ to 2⅜ inches. Primaries much produced apically. Ground color rich rufous brown, shaded with deep umber on outer and abdominal margins, and approaching black-brown on costal margin of secondaries. Primaries with three sub-apical honey-yellow spots, the upper very minute; an irregular discal patch of the same color translucent, resembling a three-leaf clover in shape and composed of three unequal outwardly-notched spots, extends from the costal area well towards the posterior angle. This patch is faintly margined by black; at the juncture of the three spots there is a triangular spot of the ground color. On the costal margin a deepening of the scales and a deep incision running therein for about one-third the length of the wing presents the appearance of an aborted costal fold; sometimes this area is of a lavender-gray color. On lower margin towards base there are two small black spots and two smaller and less distinct just below the outer angle of the discal patch; these seem to be a disconnected continuation of a band of two or three still fainter on apical area. Secondaries have a small round black spot on disc and a row of five or six of the same color, and of varying size, parallel to the outer margin.

Beneath, the ground color is much duller in tone and more clouded. Honey-yellow spots, of the primaries above, reproduced; black points wanting. Secondaries without the broad area of black-brown on costal margin; the spots of the upper side are replaced with spots of a lighter color than the ground

encircled with brown fuscous. The row of spots parallel to the outer margin is made to continue in its sub-marginal course by the addition of two spots placed parallel to the costal margin. Beneath the discal spot and towards the abdominal margin there is another somewhat smaller.

Body and thorax above and below concolorous with the wings; head above the same, below much brighter. Antennæ annulated with black and the general color, brighter at base of tip, then black, and finally ending in a long tapering tip of the general color.

Habitat.—Mexican boundary of Texas; Mexico; Central Am.; Brazil (?). The locality was unknown when the insect was figured by Westwood.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

◇

ABCANTHIA PAPISTRILLA IN NESTS OF THE BARN SWALLOW.—While workmen were nailing some brackets beneath the eaves of the college barn in the latter part of last August preparatory to putting up new eave-troughs, they complained of receiving a shower of bed-bugs whenever they pounded on the barn. The fact was reported to me and I immediately went, bottle in hand, to get a supply of the bugs.

A large flock of swallows had lived about the barn all summer and reared their young and had recently deserted the place. The eaves were completely lined with their mud nests between the ends of the rafters. Upon examining these nests I found them to be literally alive with crawling vermin somewhat resembling bed-bugs, but much smaller, more hairy, and having a grayish pilose appearance instead of the naked brick-red appearance of the article that I had always seen. The outside of the nests were in many places gray in color from the accumulation of their white egg-shells. The largest of the bugs found in the nests measured but 9–64 of an inch in length, while full grown specimens of *A. lecturaria* in my collection measure fully ¼ of an inch. I am indebted to Mr. Ashmead, of the Division of Entomology at Washington, for the identification of the species. Mr. Ashmead tells me that he does not think that this species has ever before been reported in this country. It is a common species in

Europe on the swallow and the bat. Is it not very possible that in most cases, and perhaps in all cases, where bed-bugs have been reported in swallow's nests in this country that this was the species present, and not *A. lectularia?* C. P. GILLETTE.

West Cliff, Custer Co., Col., Dec. 16, 1889.

The Editor ENTOMOLOGICAL NEWS,

DEAR SIR:—I received your preliminary circular, or prospectus, to-day, and am glad to hear of the new journal. Conducted on the lines set forth, and by the editor and committee announced, it cannot fail to be highly useful. It will bring entomologists in closer touch and to more harmonious feeling than has yet been seen on this side of the water. * * *

It has occurred to me that ENTOMOLOGICAL NEWS might fulfil a very useful function by collecting facts and opinions regarding the various questions which have been or are under debate in entomological circles. Thus, you might announce in successive numbers of the journal that facts and opinions were required concerning such questions as:

1. Does moisture cause melanism, and if so, why?
2. Ought varieties to be named, and if so, to what extent?
3. Should the term "form" be used to indicate slight varieties?
4. In symmetrical insects does one side tend to vary more than the other in an average of numerous examples?

And so on.

Then a "question editor" might be appointed (or a committee) to sift and arrange the resulting correspondence, and finally draw up a report showing the trend of opinion and the weightier facts on either side. Don't you think that would be useful?

You might also have a "Variation Committee," to receive reports of all varieties, and assort and arrange them when convenient for publication. In this way facts from all hands would be correlated and their significance understood.

Hitherto there has been too much exclusiveness. Those who were not specialists, or great students, have thought they could do nothing, whereas, properly guided, they can do *everything!* But they must not be slighted or looked down upon because they are "beginners."

Yours very truly,

THEO. D. A. COCKERELL.

[The projectors of ENTOMOLOGICAL NEWS have had the plans for its management and publication under advisement for some time past; in fact ever since the untimely demise of "Papilio," in 1885, it has been more or less in their minds. Though for some time assured that such a journal as they hope to make it was needed they have continued to feel doubtful of its reception by the entomological public until answers began to pour in from those who received the preliminary circular alluded to above. Letters such as this from one of the most active biologists interested in our science have reached us in sufficient numbers to assure us that American and

Foreign Entomologists are much interested in our success. From these present humble beginnings we hope to move on towards even higher ideals until, with the aid of our correspondents, we reach such useful channels as Mr. Cockerell has outlined.—E. M. Aaron.]

Whistling Trees.—A species of *acacia*, which grows very abundantly in the Soudan, is also called the "whistling tree" by the natives. Its shoots are frequently, by the agency of the larvæ of insects, distorted in shape and swollen into a globular bladder, from one to two inches in diameter. After the insect has emerged from a circular hole in the side of this swelling, the opening, played upon by the wind, becomes a musical instrument, equal in sound to a sweet-toned flute.—*Exchange.*

A Grasshopper Story.—A reformed car driver who worked for the Street Car Company of Mobile, Ala., in the days when paper currency was all the go, says that the company introduced the patent boxes which for a time headed off the boys effectually in their "knocking down" fares. But the victory of capital over labor was short-lived, for the drivers supplied themselves with large grasshoppers which they tied by the wings with a string and shoved down into the box, and when Mr. Grasshopper grabbed onto a dime they jerked him back out of the box. This was kept up for some time with great success, until one day the string broke and left the bird in the box, which gave the snap away.—*Exchange.*

Jewels That Are Alive.—The firefly of the South—the *cucujo*, an inch-long beetle—is occasionally brought to this country as a curiosity, and if fed on sugar-cane and kept in a moist atmosphere it can be preserved in health for several weeks. The people of the Caribbean Islands use these beetles for ornament, confined in folds of gauze, where the beautiful green light which they emit—their red light flashes only in flying—is more varied and splendid than any emerald that ever shone in a king's coronet; a number of them together under a glass make sufficient illumination for dressing or reading without producing any heat.—*Harper's Bazar.*

The Mexican Wasp.—The Mexican Wasp is built entirely for business. He is over two inches long when he is of age, and is about the color of a bay horse. His plunger is a full inch long and as fine as a spider's web. Unlike the stinger of a common bee, the stinger of the Mexican Wasp is non-forfeitable. He doesn't give up after one lunge, but is always ready for an all-day job if necessary. The mission of the Mexican Wasp seems to be to hunt up people to run his stinger into. The natives say that he will go ten miles out of his way to get a whack at a person. The natives seem to get fat on snake bites, centipede bites and scorpion stings, but if they discover one of these wasps in their neighborhood they hunt for cover without delay.—*Great Divide.*

Entomological Literature.

PROCEEDING OF THE ASIATIC SOCIETY OF BENGAL, January–June, 1889 ["Issued May–August, 1889;" received in Philadelphia, Dec. 21, 1889.] Contains the following: "Three new Homoptera" (Indian species) by M. L. Lethierry.—E. M. A.

SCIENCE.—Dec. 20, 1889, contains a very full and appreciative review of the work done and recently reported upon by Prof. W. A. Henry, of the Wisconsin Experiment Station, acting under the direction of Secretary of Agriculture Rusk, on certain matters connected with agricultural and entomological research on the Pacific coast.—E. M. A.

ANNALS OF THE N. Y. ACADEMY OF SCIENCE, Vol. IV, No. 12 ["Nov. 1889;" received Dec. 21, 1889.]—Contains a new genus of Termitophilous STAPHYLINIDÆ (continued)" by T. L. Casey. *T. insolens*, from Panama, is described as new.—E. M. A.

THE ENTOMOLOGIST.—December, 1889, contains "*Pararge megæra*," by Sydney Webb. The author figures and describes an aberrant form captured in Kent. "Notes on Parasites of *Atherix ibis* Fabr." by W. H. Ashmead, T. R. Billups and F. W. Frohaws. Hymenopterous insects of the genera *Antæon* and *Trichogramma* are commented on. "Notes from the Northwest Counties," by J. Arkle; collection Notes. "Entomology of Iceland," by Rev. F. A. Walker. Notes on a list of Insects taken there this year. "Contributions towards a list of the varieties of *Noctuæ* occurring in the British Islands," by J. W. Tutt.—Under "Entomological Notes, Captures, etc.," there are the usual notes on localities, odd aberations, varieties, etc. In addition, notes on "Parasites on Moths," by E. Bostock. "New views on the suborder HOMOPTERA," by W. L. Distant," and "Fungus parasitic on Insects," by George J. Grapes, are interesting. The usual reports of the Proceedings of the English Entomological Societies, and reviews of Distant's "Monograph of Oriental Cicadidæ" and Porritt's "Notes on an extraordinary race of *Arctia mendica* Linn." are followed by six pages of index, etc.—E. M. A.

FIFTH REPORT OF THE INJURIOUS AND OTHER INSECTS OF THE STATE OF NEW YORK, by J. A. Lintner, Ph. D., State Entomologist, Albany, 1889. In a work of 203 well-printed pages, the author treats of "Remedies and Preventions of Insect Attack," "Injurious HYMENOPTERA," "Injurious LEPIDOPTERA," "Injurious DIPTERA," Injurious COLEOPTERA," "Injurious HEMIPTERA," "Insect Attacks and Miscellaneous Observations," "ACARINA and MYRIOPODA," and adds a "List of publications of the Entomologist" (1888) 52 articles being enumerated, and 69 articles added in a special bibliography for 1884 and 1885. Indices, general and botanical, occupying 21 pages are added; 50 figures in the text serve to illustrate as many insect pests or friends. As is usual with

the works of this author, this report is an excellent hand-book of the year's research in Economic Entomology in America. It is invaluable to all entomologists, whether they be interested in economic or classificatory work.—E. M. A.

Canadian Entomologist—January, 1890. This first number of Vol. XXII contains "*Balaninus*—Its food habits," by John Hamilton, M. D., with five illustrations of *Balaninus nucum*. The continuation of Prof. J. B. Smith's "Preliminary Catalogue of the *Arctiidæ* of Temperate North America, with Notes" [the genus *Arctia*.] "Note on the Larval Ornamentation of the North American *Sphingidæ*," by A. R. Grote. "Descriptions of Lepidopterous Larvæ," (*Mamestra lorea*, *Phycis rubifasciella*, *Salebria contatella* and *S. celtella*). "Note on the genus Crocota and Prof. J. B. Smith," by A. R. Grote; a controversial article. "Notes" and "Correspondence" contain brief notes on Collecting by F. B. Caulfield. "The Cotton Worm" around London, Ontario, by E. Baynes Reed, and "Chrysalids (*Pyrameis cardui*) devoured by Caterpillars (*Spilosoma isabella*)," by S. W. Denton.—E. M. A.

The Entomologist's Monthly Magazine—January, 1890, contains "*Micropteryx* larvæ," by John H. Wood. "*Coleoptera* at Cobhane Park, Kent," by J. J. Walker. "Descriptions of two new genera (*Stethidea* and *Trichidea*) and of some uncharacterized species of *Galerucinæ*," by Joseph S. Baly. The species are from the Indian fauna. "Notes on the *Lepidoptera* of Mooltan," by N. Manders. "*Icerya purchasi* and its insect enemies in New Zealand," by W. M. Maskell. The briefer notes in this issue are on "*Scoparia atomalis* and *Scoparia augustea*," by Eustace R. Bankes. "*Opostega salaciella*," by the same author. "Habits of the Honey Moth" [*Galleria cereana*,] by C. G. Barrett, and "*Anarta myrtilli* at flowers," and "Identity of *Phycis adornatella* and *P. subornatella*," by the same author. "Habits of the larva of *Eudorea dubitalis*," by W. Machin. "The Life-history of *Simæthis combinatana*," and "On the flight of *Atta antarctica*," by G. V. Hudson. "*Psocidæ* and Mistletoe," by R. McLachlan, who says: "much and interesting could be written on the denizens of an old tuft of mistletoe;" "*Limnophilas hirsutus* at sugar," by Geo. R. Porritt; and the usual notes on localities and captures in the British Isles.

A review of "Indian Museum Notes, Vol. I, No. 1," which is "planned much on the same lines as 'Insect Life,' and like it cannot fail to have a beneficial effect," is published and Obituary Notices of Dr. Franz Löw, at Vienna, aged 61; J. B. Géhin, at Remiremont, aged 73; and Prof. Wm. Ramsay McNab, M. D., at Dublin, aged 45, are given. The usual accounts of Society Meetings end the number.—E. M. A.

Le Naturaliste Canadien December, 1889.—With this issue comes (paged 285–292) a separatum continuing the work on the *Jassides* (*Jassus* to *Pediopsis*). The rest of this number is of general interest, and not especially addressed to entomologists.—E. M. A.

The Entomologische Zeitschrift, Dresden, Band 2, 1889, contains a very interesting and valuable paper to lepidopterists entitled: "Lepidopteren der Insel Palawan," by Dr. O. Staudinger. It covers one hundred and seventy-seven pages enumerating two hundred and eighty-three species collected by Dr. Platen. At the end of the paper are two very useful lists of species, one being systematic and the other alphabetical. About sixty new species are described, and some of them illustrated, there being two plates, containing thirty figures, which are photographic reproductions. Copious notes are given with each species listed. Among the interesting new forms were two species of *Ornithoptera*. Palawan is one of the Phillipines, and is two hundred and sixty miles long by thirty wide, the interior being mountainous, and the west flat. The products of the island are cowries, gold, ebony and other fine woods. Also two papers by C. Ribbe; one on two new diurnals from Africa, and the other on new butterflies from Banggassa, a small isle in the Celebes, illustrated by two plates, seven figures. A paper by H. Ribbe on some aberations in the collection of Gustav Borneman, is also of interest to lepidopterists.

H. Skinner.

Doings of Societies.

Colorado Biological Association, West Cliff, Oct. 19, 1889.—Mr. Cockerell exhibited and made remarks on a number of Hymenoptera, including *Vipio coloradensis* Ashm. ♀, collected in the Wet Mountain Valley, Col. This was only the second example of the species known.

December 14th Mr. S. H. Scudder was announced as a corresponding member. Letters from Mr. Ashmead, containing identifications of Hymenoptera and Hemiptera, and from Rev. G. D. Hulst, containing identifications of Lepidoptera, were laid before the meeting.

All these insects had been collected in Wet Mountain Valley, Custer County, Col. The Hymenoptera included *Glyphe flavipes* Ashm., *Homalotylus bifasciatus* Ashm., etc. The Lepidoptera included two new species: *Ragonotia saganella* Hulst and *Caripeta niveostriata* Hulst, and a species, *Altoona ardiferella* Hulst, of which only one specimen was previously known. T. D. A. Cockerell, Sec.

The Entomological Society of London, Dec. 14, 1889.—Mr. W. L. Distant exhibited on behalf of Mr. L. de Nicéville, a branch of a walnut tree on which was a mass of eggs laid by a new Lycænid butterfly, which Mr. de Nicéville had referred to a new genus and described as *Chætoprocta odata*. It was said to occur only at elevations above 5000 feet in N. W. India. Dr. Sharp exhibited eggs from a South American bug, *Piezostermum subulatum*, which, though taken from a completely rotten imago, were in a perfect state of preservation. He also exhibited a speci-

men of *Pœcilochroma Lewisii*, a Pentatomid bug from Japan, which, when dampened with water, turned instantly from a dull green to a metallic copper color. Mr. J. H. Leech exhibited a large number of *Lepidoptera* from Mr. Pratt, of Ichang, China, which contained fifty-six new butterflies and forty new moths. Mr. Elwes observed only two genera in this collection not known to be found at Sikkim. He called attention to the similarity of the species from India, China and Java. Mr. McLachlan remarked on having lately received a dragonfly from Simla previously only recorded from Pekin; and Mr. Distant stated that he had lately received a species of *Cicada* from Hong Kong hitherto supposed to be confined to Java. Mr. W. H. B. Fletcher exhibited a preserved specimen and drawings of a variety of the larva of *Sphinx ligustri*. Mr. F. D. Godman read a letter from Mr. Herbert Smith, containing an account of the *Hymenoptera*, *Diptera*, *Hemiptera* and *Coleoptera* recently collected in St. Vincent, where he was employed under the direction of a committee of the Royal Society appointed to investigate the natural history of the West Indies [it is understood that a work on the lines of the superb "Biologia Centrali-Americana" will in time be the product of this survey.]

Mr. Elwes read a letter from Mr. Doherty descriptive of collecting at light and sugar in the Naga Hills. Mr. Doherty expressed the opinion that light used in out-of-the-way places repels rather than attracts; the same applied to sugar, as insects required to be accustomed to these decoys, Col. Swinhoe said the attractive power of light depended on its intensity and height above the ground. He had collected over three hundred specimens of *Sphingidæ* at electric light in Bombay in one night. Mr. J. J. Walker had found electric lights very attractive in Panama. Mr. F. Merrifield read a paper entitled, "Systematic Temperature Experiments on some *Lepidoptera* in all their stages," and exhibited a number of specimens in illustration. Darkness of color and markings in *Ennomos autumnaria* resulted from the subjection of the pupæ to a very low temperature. The same had occurred in *Selenia illustraria*, where the markings had also been altered in a very striking manner. Lord Walsingham observed that exposure to cold in the pupa state appeared to produce a darker coloring in the imago, and that forcing in that stage had an opposite effect; that insects subjected to glacial conditions probably derived some advantage from the development of dark or suffused coloring, and that this advantage was, in all probability, the more rapid absorption of heat. He believed an hereditary tendency in this direction was established under glacial conditions, and that this would account for the prevalence of melanic forms in northern latitudes and at high elevations.

H. Goss and W. W. Fowler, Sec's.

Entomological News for January was mailed Jan. 15, 1890.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

VOL. I. MARCH, 1890. No. 3.

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NOTES FROM THE NORTHWEST.

BY H. F. WICKHAM.

The following notes were made on my collecting trip in the summer of 1889, and may be of interest to the readers of ENTOMOLOGICAL NEWS.

The species of *Cychrus* included in the subgenus Brennus are said by Dr. Horn (Trans. Am. Ent. Soc. VII, p. 176) to be "peculiar to the true Pacific coast fauna of North America." This summer I took the common *C. marginatus* Fisch. at Mullan, Mon., and again at Helena in the same State, which extends the range a long way east. These examples differ from the western ones by being smaller and of a more uniform black.

Carabus mæander occurs in the Rocky Mountains at Mullan, Mon.

A special search for Pselaphidæ brought to light only the following species: *Ctenistes pulvereus* Lec., one specimen under a stone at The Dalles, Oregon. Three examples of *Pselaphus*

erichsonii var. *longiclavus* Lec., many *Bryaxis conjuncta* Lec. and *Bry. albionica* Mots. in rubbish under logs at Cœur d'Alene, Idaho. *Tychus cognatus* and *Batrisus zephyrinus* Casey (which runs in collections as *albionicus* Aubé) occurs in moss at Victoria, Vanc. I.; the latter species also at Tacoma.

Batrisus monticola Casey came to hand only once in the Cascade Mountains, Yakima Co., Wash., where *Bry. albionica* was also taken. A single ♂ of *Bry. albionica* also occurred at Victoria. At Portland, Oreg., I got a specimen of *Faronus cavifrons* Casey under bark. *Bry. fundata* is found at the Spokane Falls late in July, under logs, and in the Rocky Mountains at Mullan, Mon., I took a beautiful example of *Tyrus corticinus* Casey.

Mycetina hornii occurs occasionally under bark throughout the Northwest, but I found in one case a colony of over seventy-five individuals under a single log in a burnt district of the pine forests covering the Cœur d'Alene region. Byrrhidæ seems to prefer burnt logs for protection, as they were always more numerous where the timber had been charred by fires. *Calochromus dimidiata* has the same habit.

In a swamp at Cœur d'Alene I found *Aphodius occidentalis* in unlimited numbers in little ditches which ran through the soft earth. They were there by thousands, dead and living, a half hour's work supplying me with above seven hundred of them. The beetles were burrowing at random in the mud, which was apparently rich enough for them to live and luxuriate in, full of decaying vegetable matter. Toads had been attracted to the feast in numbers, and, to judge from the quantity of wing covers in their excrement, had made the most of their opportunity.

Amphicoma canina and *A. rathvoni* are day fliers, and may be found flying in the hot sun during the early part of July, frequenting the flowers of the "Yarrow," which grows abundantly near Tacoma, where I made my observations. I do not know if the occurrence of *Cremastochilus* under bark has ever been reported. I took a few of them in such a situation at Cœur d'Alene, but they were in the company of their hosts—ants. I have called the species *pilosicollis* Horn, but there may be some little doubt as to the correctness of the determination.

The electric lights of Spokane Falls attract great numbers of *Ergates spiculatus* and *Prionus californicus*, so I made it my business to go around every night to pick them up. They come

out from cracks in the sidewalks, under door-sills, and in fact from any place where they can squeeze themselves away. Then the fun begins, and, as I go down the street with my biggest collecting bottle slung on my wrist and begin picking up the "bugs," I am a centre of attraction. Next, two policemen proceed to "collar" me, and it takes half an hour of explanation to convince them that I am neither an incendiary nor a fugitive from the State asylum, and that my bottle (because, forsooth, it is marked "poison") is not a deadly weapon. At length they are satisfied though, and let me off, and I filled my bottle every night.

Leptura makes a brave show in these Northern regions, and all the following occur on flowers: *L. obliterata*, *soror*, *plagifera*, *subargentata*, *convexa*, *canadensis*, *erythroptera*, *lætifica*, *quadrillum*, *chrysocoma*, *crassicornis*, *crassipes* and *scripta*, most of them rather rare.

Timarcha intricata I found always under logs in moss. Whether it feeds on this or not I cannot say. Occurs at Portland, Tacoma and Cœur d'Alene from early June until the beginning of August. *Chrysomela exclamationis* and *conjuncta* are common in Idaho (Pocatello) on Helianthus, and *C. elegans* on willows at various points. *C. lunata* I found on rosebushes mostly, though they also appear on grasses, sunflowers, asters, and even poison ivy. I doubt if they eat any of these but the roses, however.

The Tenebrionidæ I leave for a separate paper, and will close with a few remarks on the Rhynchophora of the region. *Thricomigus luteus* is found in western Wyoming under logs and on rose-bushes. *Sitones* is everywhere, but I am not yet able to satisfactorily separate my series. *Plinthodes tæniatus* I took under logs, and the same is true of *Trichalophus didymus*. The former species I took at Tacoma and Victoria, the other is found, though rarely, over the entire northwestern corner of the United States, and as far East as Mullan, Mon. It seems to be quite variable in size and color.

Macrops also occurs over almost the whole region, though I took none at Victoria. At Portland I took *M. humilis* in a swamp around the roots of grass, and on the plains of Wyoming, Montana and Nebraska I found *M. vitticollis*, *tenebrosus*, *ulkei* and *obscurellus* more or less abundant.

Sphenophorus is abundant in the native grasses all through the central region from Nebraska to eastern Oregon, and will doubt-

less make itself felt as a serious pest to farmers when cultivation cuts down its present food supply. Of the species I took the following: *simplex*, *vomerinus*, *ulkei*, *inæqualis*, *ochreus*, *costipennis*, *gentilis*, *parvulus* and probably *oblitus;* all on or about the roots of various grasses.

———o———

LIST OF THE DRAGONFLIES (ODONATA)

Taken at Manchester, Kennebec Co., Me., in 1888 and 1889.

BY MISS MATTIE WADSWORTH.

Tribe I.—AGRIONINA.

Subfamily 1. Calopterygina.

1. **Calopteryx maculata** Beauvois.

1888, June 19 to Aug. 2. Many ♀ ♀ observed laying eggs on plants in brook; sometime after young larvæ appeared in great quantities. 1889, June 6 to Aug. 9. A common species near brook.

Subfamily 2. Agrionina.

2. **Argia violacea** Hagen.

1888, June 23 to Aug. 2. 1889, June 19 to Aug. 9. A very common species near brook and in road.

3. **Argia putrida** Hagen.

1889, June 25, four ♂ ♂ near lake.

4. **Ischnura Ramburii** Selys, ♀ Orange variety.

1888, Aug. 8. 1889, May 25, 27, 30; June 7, 25, 27. In woods, road and near brook.

5. **Ischnura verticalis** Say.

1889, May 25 to July 2. In woods, near brook and lake.

6. **Enallagma Hageni** Walsh.

1889, June 7, ♀ ♀ 25, three ♂ ♂ ; near lake. July 6, two ♂ ♂ , brook.

7. **Erythromma conditum** Selys.

1888, June 18, in field. 1889, May 25, 28; June 27, 29; July 6. In road and near brook; not common.

8. **Lestes hamata** Hagen.

1889, June 12, 27; July 6, 27. Near brook and stagnant water; but few seen.

9. Lestes rectangularis Say.

1889, June 25, 27; July 1, 2, 6, 24; Aug. 25; Sept. 4. A common species near lake, brook and woods.

10. Lestes disjuncta Selys.

1889, July 2, 6, 8; Aug. 26; Sept. 4. Near woods, brook and in road; not very common.

Tribe II.—ÆSCHNINA.

Subfamily 3. Æschnina.

11. Anax junius Drury.

1888, Sept. 5, 14, 25. 1889, June 25, 29; Aug. 20 to Sept. 29. A very common species near woods, brook, etc.

12. Gompheschna furcillata Say.

1888, July 11, one ♂. 1889, June 6, one ♀. Near brook.

13. Æschna janata Say.

1888, June 19, one ♂. Near brook.

14. Æschna verticalis Hagen.

1888, Aug. 28 to Sept. 27. 1889, July 16, 24, 26. Seen during Sept. with *Æ. constricta* near woods, and in pasture, near brook.

15. Æschna constricta Say.

1888, Sept. 3 to Oct. 19. 1889, Aug. 28, and occasionally during September. Near brook and woods.

16. Æschna heros Fab.

1889, June 24, 27, 30; July 9; Sept. 1. Near brook and road; not very common.

Subfamily 4. Gomphina.

17. Gomphus parvulus Selys.

1888, June 19, one ♂; in woods.

18. Gomphus exilis Selys.

1888, June 15 to July 8. 1889, May 28 to June 28. A common species near woods, brook and road.

19. Gomphus spinosus Selys.

1888, July 13, one ♀ in woods. 1889, June 25, one ♂ in woods. July 5, observed one devouring a *Calopteryx maculata*.

20. Hagenius brevistylus Selys.

1889, June 18, one ♀, in woods.

21. Cordulegaster diastatops Selys.

1888, July 11, near brook. Not common. 1889, June 13, one ♂.

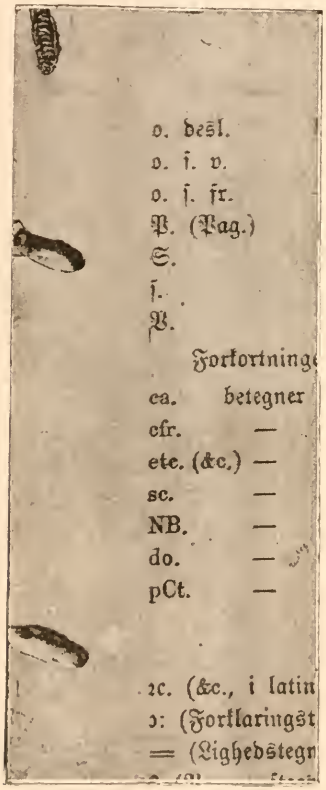
(To be continued.)

FOND OF GRAMMAR.

BY OTTO LUGGER.

Entomologists all know that insects are by no means very stupid animals, and know much more than is generally supposed. They learn, no doubt, by experience as well as we do, but do not, as a general rule, search for knowledge.

A few days ago a young student at the Agricultural School complained that his books at home were badly eaten by some insects, and as a specimen of the damage caused by them he brought a Norwegian grammar. And true enough the damage done was very plain, and the culprit, or rather culprits, were still engaged in the work, as may be seen in the illustration. Snugly hidden in the grammar were the larvæ and the imago of *Trogosita mauritanica*, and also the pupal skin of a third individual, already escaped. But evidently the desire to inform themselves in the Norwegian grammar had not been very great, or had been too difficult for their taste. They had not penetrated into the grammatical mysteries, but were satisfied to rest contented with a very superficial knowledge of the same. But they had gone into it to stay; had formed snug cells close to the edges, and had plugged the entrances with frass; had, so to speak, burned the ships behind them. Telling the boy that he ought to be ashamed of neglecting his books he wondered that the insects should have been able to inform me of the fact. When I also told him to remove his books from the vicinity of neglected flour, feed or similar things, he looked perplexed, and said that the bugs had told me more about



his room than he knew himself, but an inspection soon showed that the books were stored upon a board resting upon a barrel filled with old bran. Evidently the larvæ, in search for suitable quarters to transform, had wandered about and had mistaken the covers of his books for the loose bark of trees, their usual abode.

———o———

An Interesting Method of Egg Deposition.

BY J. E. IVES.

Some time since I received from Mr. J. C. Saltar, of Pemberton, N. J., what appeared to be a dried-up mass of dead flies, about the size of a man's fist. Throughout it were scattered light-colored fragments, which had somewhat the appearance of empty egg-cases. The whole mass was very brittle, and readily crumbled to pieces. It was obtained from the under surface of the trunk of a tree overhanging a small stream.

Being unable to obtain any information as to the nature of this peculiar structure, I sent it to Dr. Williston, of Yale, with the request that he would kindly examine it. He has done so, and writes that the flies are the females of a species belonging to the genus *Atherix*, probably to *Atherix variegata* Walk. He draws attention to the fact that, in the Standard Natural History, p. 418, he makes the following reference to the subject: "The eggs of *Atherix* are deposited in large, pear-shaped masses, attached to dried branches overhanging water. Not only do numerous females contribute to the formation of these clusters, but they remain there themselves and die; the newly-hatched larvæ escape into the water."

The instinct which leads to the formation of such a mass is a very peculiar and interesting one.

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NOTES ON BOMBUS.

BY C. ROBERTSON.

In a letter addressed to me in October, 1888, Mr. Cresson expressed the suspicion that *Apathus? elatus* Fab. was not a true *Apathus*, but that it was probably a *Bombus*, and in a letter of November he expressed the hope that I would obtain some light on the subject during the following summer. Accordingly, in

the summer of 1889, I completed my observations, arriving at the conclusion that *Bombus americanorum* Fab. is distinct from *B. pennsylvanicus* De Geer, and that *Apathus? elatus* is its male. I give below the synonymy of the two species with my notes upon them:

Bombus pennsylvanicus.

Apis pensylvanica DeGeer, Mém. III, 575 (1773).

Bombus pensylvanicus Cress., P. E. S. II, 94, ♁—♀ ☿ in part (1863).

On Aug. 22, 1888, I took the sexes of this species in copula. The female was hanging by one foot to a leaf of Gerardia pedicularia. This female bore two yellow spots on the vertex; the scutellum had a little yellow; the first segment of the abdomen was entirely black. From the specimens at hand I would distinguish the female from that of *B. americanorum* as follows: Vertex always more or less yellow; scutellum more or less yellow; first segment of abdomen black, or with a little yellow on the sides; seen from above, the base of the labrum shows a transverse ridge more or less interrupted medially. The worker resembles the female.

Bombus americanorum.

Apis americanorum Fab., Syst. Ent. 380, (1775); Ent. Syst. II, 319 (1793).

Bombus americanorum Fab., Syst. Piez. 346, (1804); St. Farg. Hym. I, 472 (1836).

Apis elata Fab., Ent. Syst. Suppl. 274, ♂ (1798).

Bombus elatus Fab., Syst. Piez. 352, ♂ (1804).

Apathus elatus Cress., Proc. Ent. Soc. II, 114, ♂ (1863).

Apathus? elatus Cress., Cat. Described Hymenop. N. A. ♂ (1887).

Apis nidulans Fab., Ent. Syst. Suppl. 274, ♂ (1798); see Cress., Proc. Ent. Soc. II, 165.

Bombus nidulans Fab., Syst. Piez. 349, ♂ (1804).

Bombus pensylvanicus Cress., Proc. E. S. II, 94, ♀ ☿ in part (1863).

In Proc. Ent. Soc. II, 164, Mr. Cresson says: "On the 11th of September, 1863, a nest of *Bombus pensylvanicus* De Geer, was captured near Gloucester, N. J. It contained 6 females, 34 workers and 21 specimens of *Apathus elatus* Fab., all males. No males of *B. pensylvanicus* were found in the nest." This convinced me that a solution of the problem must be found in the nests of *B. pennsylvanicus*. Accordingly, on Aug. 20, 1889, I opened a nest of what I had always taken as *B. pennsylvanicus*. It contained 1 female and 121 workers, and 2 males of *Apathus? elatus*. On comparing this female and the workers with the female taken in copula with *B. pennsylvanicus* ♁, I came to the

conclusion that they were distinct, and that the nest belonged to *B. americanorum*. On September 9th I saw the sexes of this species in copula. The same night I opened two nests, one containing 10 females, 46 workers and 10 males, and the other containing 9 females, 51 workers and 1 male.

The female of *B. americanorum* has the vertex always black; the scutellum black, or with a little yellow; the first segment of the abdomen yellow; seen from above, the base of the labrum shows two tubercles separated by a wide interval.

The males of *B. americanorum* and of *B. fervidus* may prove to be very much alike. Indeed the ♂ of *B. americanorum* resembles the ♀ of *B. fervidus* more than its own female; but I think *B. americanorum* is more nearly related to *B. fervidus* than it is to *B. pennsylvanicus*. *B. fervidus* is very rare in my neighborhood, as I have seen but two female specimens. In Proc. Ent. Soc. III, 247, Walsh mentions finding *B. fervidus* ♀ surmounted by *Apathus elatus* ♂. He was discussing the effect of mimicry, and he cites this as a case in which a Bombus mistook an Apathus for one of its own species. But the mistake was probably on the part of the entomologist; he had, no doubt, taken the true sexes of *B. fervidus*.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

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SCIENTIFIC RESEARCH IN MEXICO.—An important scientific exploration is to be made of the less known portions of Yucatan and Mexico, regions which have not hitherto been systematically explored by naturalists, except in so far as archæology is concerned. It is the object of the expedition to ascertain, as a continuation of former explorations in Florida, the general structure of the basin of the Gulf of Mexico, concerning which there is much diversity of opinion among scientists.

The exploration will comprise, besides the geological examination of the region, a close examination of its zoology and botany, towards which end specialists in various departments of science will accompany the expedition. The party will be under the leadership of Prof. Angelo Heilprin,

of the Academy of Natural Sciences. Accompanying him will be Mr. J. E. Ives, one of Prof. Heilprin's assistants at the Academy of Natural Sciences, who will have charge of the marine zoology; Mr. Witmer Stone, who will make the collections of botany and ornithology; Mr. F. C. Baker, of conchology and general zoology and Mr. Roberts Le Boutillier, who will be the photographer of the expedition.

Papers governing the expedition have been received from the State Department at Washington addressed to the representatives of this country in Central America and Mexico, and also from the Mexican Minister at Washington, Senor Romero, commending the expedition to the Government of Yucatan.

The expedition left New York by steamer February 15th, to stop first at Progresso, Yucatan, whence the research will extend into the interior of that State. Much of interest is expected from the expedition to this region, as very little is known of its entomological riches.

From Yucatan the expedition will be deflected to Vera Cruz, whence will begin the exploration of the Mexican lowland and of the volcanic belt which stretches westward towards the Pacific. This region, like Yucatan, despite its ready accessibility, is still to a great extent unknown to the entomologist. The determination of the limitation of the range of animals and plants and the intermingling of Northern and Southern forms will receive the first attention of the expedition.

An attempt will be made to gain the summit of the extinct volcano of Orizaba, 17,500 feet high, by some considered to be the loftiest peak in Mexico, and perhaps loftiest summit of the entire North American Continent, of the complete ascent of which no trustworthy details appear to be on record. The peak affords almost unsurpassed advantage for the study of vertical distribution of animal and plant life, since it rises from a base within a short distance of the sea, far beyond the limits of perpetual snow.

From Orizaba the course will lie towards the City of Mexico, where an examination will be made of the lakes lying on the Mexican plateau. An ascent will be made from this point of the neighboring peak of Popocatepetl, which rises to approximately the same height as Orizaba, but is much more accessible than that mountain.

From the valley of Mexico the expedition will take a westerly course, having in view the passage of the Sierra Madre Mountains and a descent to the Pacific coast. The still active volcanic foci will be made the feature of this research.

The volcano of Colima, 12,500 feet, in elevation, whose recent furious eruption gave evidence that the volcano was not, as generally supposed, extinct, and which threatened the existence of Zapotlan, will probably be the limit of the expedition, although a further attempt to reach Jorullo, rendered famous by Humboldt's narrative, may be made.

The exact route of the return journey has not yet been determined upon. It is expected, however, that it will reach home before midsummer.

A large part of the region to be traversed will lie away from civilization, necessitating travel by primitive methods, and for some distance probably the protection of an armed escort will be necessary, especially in the region of the revolted Indian tribes of Yucatan.

The expedition is organized under the auspices of the Academy of Natural Sciences, which has received the co-operation of its individual members, and also of the American Philosophical and American Entomological Societies.

This expedition, it is stated, is the first extensive one that has been organized by a scientific institution in this country to be sent outside of the bounds of the United States for many years, and its results are awaited with a great deal of interest by scientists.

The entomological collections, which will be made in all orders, will be distributed among the leading specialists, and the conclusions reached by them will be published in the Proceedings of the Academy of Natural Sciences of Philadelphia, or in the Transactions of the American Entomological Society. The narrative of the expedition will probably be published in separate book form.

Editor ENTOMOLOGICAL NEWS:—I should like to ask some of your readers if Sudbury, Ontario, is not a very Northern locality for *Calosoma scrutator?* I have always understood that if ever found North of the Great Lakes it came only as a shipwrecked mariner. While looking under pine bark for *Alaus myops* last spring, of which I took nineteen specimens in a few days, I found a fresh, living, full-sized specimen of *C. scrutator*.

Altogether, I took some 450 different species of beetles here last season, but cannot get more than half of them named. *Elateridæ* were peculiarly plentiful. I took some 200 individuals and nearly 30 species; also 42 species of *Carabidæ* and 21 of water beetles. My prize is a large green insect, apparently a *Cantharis*, but certainly not one of the common *Cantharidæ*; also several *Cerambycidæ* and *Pyrochroidæ* that local entomologists cannot determine.

Lepidopterists will be interested to know that *Colias interior*, both male and female, are quite common here in the season.—E. D. PETERS, JR.

HOP WORMS.—Late last August I found several larvæ feeding in the Hop (Humulus lupulus). I removed portions of the stems, cutting five or six inches above and below the swellings, and placed them in a box used for feeding larvæ. In about three weeks the imagos emerged, proving to be *Gortyna rutila* Guén. The vine from which they were taken was literally riddled with them. No description of the larvæ was taken at the time, but I hope to be able next season to give a more detailed account of them. Two broods of *Gortyna nitela*, with its variety *nebris*, were raised in the same manner. The larvæ were feeding in the stems of the great rag-weed (Ambrosia trifida). This larva feeds also in the stems of burdock (Arctium lappa). As far as my experience goes, all the Gortynæ are internal feeders.—C. A. BLAKE.

A Correspondent in Hardeeville, S. C., says he "witnessed a most wonderful phenomenon: from noon to sundown, with a gentle wind blowing from the southwest and a perfectly clear sky, a shower of white balls filled the air and covered the ground for a space of ten miles square, with a gentle shower of a white fleecy substance, as fine as silk, which was very strong when twisted. He was unable to account for its presence there, and had never seen anything like it before." The same thing occurs here every autumn, but I never saw it as abundant as the correspondent describes. The little balls referred to are the flocculi, or remains of the web of which the spiders make their cocoons, the excess being cut off and floats away.—C. A. Blake.

A Needless Alarm.—Some time ago a certain entomologist in one of the leading cities of the country who, on the Sabbath days, strives to enlighten a large and aristocratic congregation in the mysteries of the gospel, but beguiles his leisure moments by the pursuit of hexapods, happened to find a heap of refuse lying near a humble dwelling in the outskirts of the city aforesaid. The gentlemen is a devoted student of lepidopterology, but bags the beetles, also, as they chance to fall in his way. The most prominent object on the ash heap was an antiquated and effete ham, upon which numerous carrion beetles were disporting themselves. Recognizing the find as worthy of his attention, he began to collect the insects upon it. He had barely begun his malodorous task when he discovered that he was being observed, and a strident female voice from the second story of the humble dwelling rang out an excited warning—"Law sakes! man alive that ham is spiled! Nancy and me throwed it out day before yesterday! It's all blowed! Law sakes! you don't be after gatherin' up such truck as that, be ye? A well dressed man like you un hadn't orter to be rakin' in old ash heaps after somethin' to eat. Ef you're hungry come in the house an' I'll give you a bite. But (and here the voice rose to a shrill falsetto), mercy me! leave that old ham alone! It's spiled! I tell you it's spiled!" The clergyman, who carried under his waistband reminders of an elegant luncheon served an hour or two before, cannot cease to smile at the memory of the position into which his entomological ardor had brought him in the eyes of the old dame, from whom he escaped as she was coming down-stairs to open the door and offer him the hospitalities of her little home.—Anon.

Entomological Literature.

Il Naturalista Siciliano.—Anno IX, No. 1, October, 1889. [Received January, 1890.]—Contains "Lepidotteri nuovi della Sicilia," (*Tineidæ*) by F. Wocke. "Note Lepidotterologiche (cont.)," by E. Ragusa; brief notes on species running from *Antigastra* to *Aciptilia*. "*Helochares nigritulus* n. sp. (habitat Sicilia)," by Kuwert. "Tavola sinottica dei Gyrinus di Sicilia," [synoptic table of the Sicilian species of the genus

Gyrinus] by E. Ragusa. "Coleotteri nuovi o poco conosciuti della Sicilia (cont.)" [new or little known Sicilian Coleoptera] by E. Ragusa; no new species described in this part. "Una nota sulla *Chalcis Dalmannii*," by T. DeStefani. This number is accompanied by the indices for Vol. VIII of this journal.

The work of a Decade upon Fossil Insects 1880–1889, by S. H. Scudder [Annual address of the retiring president of the Cambridge Entomological Club Jan. 10, 1890. Excerpt from "Psyche," January, 1890.] The author here gives a comprehensive and very readable account of the work accomplished in this field in the decade just ended; a field in which, as is well known, he has been the principal laborer. In speaking of the relative abundance of fossil insects the author says: "During the past summer, in explorations for the Geographical Survey, I found that the strata of a considerable tract of country, certainly many, probably hundreds of square miles in extent, lying in western Colorado and eastern Utah, were packed with fossil insects as closely as at Florissant. There can hardly be any doubt that we shall soon be able in our Western territories to rehabilitate successive faunas as successfully as has been done with many of our vertebrate types, and as has not yet been done for insects in any country in the world. * * What we really need is a score of trained workers to 'go in and possess the land.' No one would welcome them more heartily than one who is almost a solitary worker in the American field."

Biologia Centrali-Americana, Part LXXX of Zoology; November, 1889.—[Received January, 1890.]—Contains "Arachnida Araneidea," by O. Pickard Cambridge, pp. 41–48, pl. iv, 83 figs., 18 colored; 11 new species are described from the genera *Epeira*, *Turckheimia* and *Carepalxis*. Coleoptera as follows: Vol. III, part I, pp. 145–168, plates vii and viii, 46 figs. 20 colored. This portion on the *Buprestidæ* contains the descriptions by C. O. Waterhouse, of many new species, usually illustrated in colors. Vol. VI, part I, Supplement, pp. 153–168, plate xxxix, 34 figs. 25 colored. Many new species are here described by M. Jacoby, entirely from *Pachybrachys* and *Chlamys*. "Lepidoptera *Rhopalocera*, Vol: II," by F. D. Godman and O. Salvin; pp. 153–184, plates lxiii and lxiv, 55 figs. all colored. This part contains the systematic consideration of the group from *Colias cæsonia* to *Enantia virgo*. The pale *Terias*, allied to *mexicana* in pattern, which was returned as from the Mt. Graham Range in Arizona is here determined (with an excellent figure) as *T. Boisduvaliana* Feld. = *ingrata* Feld. = *gratiosa* Reak. = *mexicana* Boisd. in "Sp. Gen." The synonymy as worked out in this part is most instructive to the student. "Lepidoptera Heterocera, Vol. I," by H. Druce, pp. 321–336, contains the systematic treatment of this suborder from *Dyops ocellata* to *Anomis agillacea*. While reviewing this stupendous work it may interest our readers to know that the following entomological volumes have been completed: Coleoptera, Vol. I, part 1 (*Adephaga*), by H. W. Bates; Vol. I, part 2 (*Adephaga*, etc.), by D. Sharp; Vol. III, part 2 (*Mala-*

codermata), by H. S. Gorham; and Vol. V (*Longicornia*), by H. W. Bates and (*Bruchides*) by D. Sharp. These four volumes contain 2088 pages and 69 plates, with many hundred figures. In addition several other volumes on Coleoptera are well under way. Vol. I of the *Rhopalocera* is complete, save the index and title, running through the suborder from *Danais plexippus* to *Isaphis hera*.

Insect Life, Vol. II, No. 6, December, 1889 (Received Jan. 14, 1890). It hardly seems worth while to enumerate the usual richness of the monthly issues of this most excellent periodical, as it may be had from the U. S. Department of Agriculture for the asking; no entomologist can afford to be without it. Besides short notes on "The Official Association of Economic Entomologists," "Entomology at the Paris Exposition," "The Mediterranean Flour-moth," "Spider-bites," "Scent in Dung beetles," "Beetles from Stomach of a Chuck-wills-widow," "A harvest-mite destroying the eggs of the Potato beetles," "Injury to grass from *Gastrophysa polygoni*," "Damage to Pine by *Rhagium lineatum*," Notes on "*Vedalia*" and "On *Hæmatobia serrata*," there are longer papers on "The so-called Mediterranean Flour-moth," with illustrations; "The Ox-warble (*Hypoderma bovis*), illustrated;" "Association of Economic Entomologists—First Annual Meeting," by L. O. Howard, secretary pro. tem.; "Office and Laboratory Organization," by S. A. Forbes. Following these are "General Notes" on "Oviposition of *Tragidion fulvipenne*," "Insects injuring the tea-plant in Ceylon," "On some gall-making insects in New Zealand," "Dr. Franz Löw" and "Eugene Maillot," obituary notices, and the usual quota of purely economic notes.

Illustrations of Typical Specimens of Lepidoptera Heterocera in the Collection of the British Museum, Part 7, by Arthur Gardiner Butler, 1889, contains an account of a collection of Macro-Lepidoptera made in the district of Kangra India by the Rev. J. H. Hocking in the years 1877-79, chiefly at Dharmsala. The number of species amounts to upwards of 780, many reared from larvæ. There is a systematic list and a list of descriptions with notes. Vol. VII consists of 124 pages, 18 fine colored lithographic plates representing 249 figures.

In the Comptes Rendus Hebdomadaires des seances de la Societe de Biologie (Paris) ninth series, 1890, No. 1.—M. Gaston Bouchet has a short note on the "Action of the Venom of the Hymenoptera on the gray wall-lizard." He states that he caused some wasps, bees, and other hymenopters to stung some gray lizards, some of which received eight or ten stings on the most sensitive parts, such as the eyelids, tongue, etc. In most cases the piercer remained sticking in the flesh. The lizards apparently suffered little pain, and no inflammation was visible at the places stung. None of the lizards who were stung died.

Transactions of the Wisconsin Academy of Sciences, Arts, and Letters, Vol. VII, 1883-87 (published 1889), contains a paper on the Attidæ of North America by George W. and Elizabeth G. Peckham. 32

genera and 79 species are described, including both new genera and species, and six plates figure details. Also by the same authors and Wm. H. Wheeler "Spiders of the Subfamily Lyssomanæ" (of the world); a number of new species are described. We have not seen plates xi and xii intended to accompany this paper.

In the SCHRIFTEN DES NATURWISSENSCHAFTLICHEN VEREINS FUR SCHLESWIG-HOLSTEIN (Kiel), Bd. VIII, Heft 1, 1889, W. Wüstnei continues his notes on the Hymenoptera of Schleswig-Holstein in his third "Beiträge zur Insectenfauna Schleswig-Holsteins."

In LE NATURLISTE (Paris) for Jan. 15, 1890, L. Planet describes the larva and nymph of *Helops striatus*, with woodcuts, and P. Dognin describes three new species of Lepidoptera from Zamora, belonging to the genera *Fidonia* and *Acidalia*.

SITZUNGSBERICHTE DER KONIGL. BOHMISCH. GESELL. D. WISSENSCHAFTEN (Prague), 1889, I, contains "Revision der in Kolenatis Trichopteren-Sammlung enthaltenen Arten," by Fr. Klapalek—a synonymical article.

ATTI DELLA SOCIETA DEI NATURALISTI DI MODENA, Serie III, Vol. VIII, fascic. ii, 1889 (published in Italian), has "Notes on Arachnida received from South America," by G. Boeris, describing four new species.

H. PIERS in Proc. and Trans. Nova Scotia Inst. Nat. Science, Vol. VII, pt. iii, describes a larva of the May-beetle with parasitical fungus.

TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY Vol. XVI, Jan.-Dec., 1889, (380 pp. 8 plates), contains a Revision of the species of *Cardiophorus* Esch. of America north of Mexico. by Frederick Blanchard; On the species of *Macrops* Kirby, inhabiting N. America (plate I), by W. G. Dietz, M.D.; Contributions to a knowledge of the Lepidoptera of West Africa, Paper II, (plates 2–4), and Descriptions of new species of Japanese Heterocera, by Rev. W. J. Holland; Synopsis of N. Am. species of the genus *Oxybelus*, by Chas. Robertson; Two new species of butterflies, by H. Skinner, M.D.; Catalogue of Coleoptera common to N. Am., Northern Asia and Europe, with the distribution and bibliography, by John Hamilton, M.D.; a Synopsis of the Halticini of Boreal America (pls. 5–7), by George H. Horn, M.D ; Contributions towards a monograph of the Noctuidæ of temperate N. Am.—Revision of the species of *Oncocnemis* (plate 8), by John B. Smith; and Proceedings of the monthly meetings of the Entomological Section of Acad. Nat. Sci. Philadelphia for the year 1889.

ERRATA.

Page 5, line 22, read type of coloration *contrary* to what obtains, etc.
" 15, line 30, for *Tenzera* read *Zeugera*.
" 19, line 1, for worm read worn.
" 20, line 25, for from read forms.
" 20, line 33, for marked read naked.

Doings of Societies.

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, Nov. 12, 1889. Mr. Lugger read some notes on "The migration of the Archippus butterfly," and gave an interesting study of their spring and fall movements. He noted similar migration in *V. cardui*. Dr. Thaxter stated that he had found *Archippus* wintering along the Gulf of Mexico in vast numbers. Mr. Howard read a paper on "A few additions and corrections to Scudder's Nomenclator Zöologicus." Mr. Marlatt gave "Notes on the abundance of oak-feeding Lepidopterous larvæ this fall," and mentioned twelve species of Macrolepidopterous larvæ taken in the course of about an hour. Mr. Schwarz read a paper entitled, "Caprification," and Mr. Townsend a paper on "The fall occurrence of *Bibio* and *Dilophus*." In discussion on the last paper it was conceded that the autumnal occurrence was due to acceleration of development. W. H. FOX, M. D., Rec. Sec.

ENTOMOLOGICAL SECTION, ACADEMY NATURAL SCIENCES OF PHILADELPHIA, Jan. 23, 1890.—A meeting of this Section of the Academy was held January 23d, Dr. Geo. H. Horn, President, in the chair. Members present: Messrs. McCook, Ridings, Martindale, Skinner, Calvert, Liebeck, Wells, Westcott and several visitors. Dr. Horn exhibited some drawings illustrating points of interest in the comparative anatomy of the species in the genus Cercyon, and stated that most of the species were either introduced, or also found in Europe. The classification of the species and facts in their geographical distribution were discussed at length. Dr. McCook exhibited the first volume of his new book entitled, "American Spiders and their Spinning Work; A Natural History of the Orbweaving Spiders of the United States." He gave a resumé of the volume, and also some interesting generalizations on the facts in their natural history. On a question from one of the members Dr. McCook made some instructive remarks on Spiders as mathematicians. Dr. Skinner called attention to the donations to the cabinet: Mrs. A. T. Slosson presented a specimen of *Ecpantheria denudata* described by herself, from Florida; *Erebia magdalena* and *Argynnis frigga* var. *Saga;* two rare species, from Colorado, from Mr. Aaron; a type specimen of *Pamphila Aaroni* and two exotic butterflies donated by Dr. Skinner.—For the Recorder by H. SKINNER.

THE AMERICAN ENTOMOLOGICAL SOCIETY, Jan. 23, 1890.—At a business meeting of the Society held after the Section meeting, as above, the sum of $100 was voted toward defraying the expense of the expedition to Mexico to be undertaken under the auspices of the Academy of Natural Sciences and the direction of Prof. Angelo Heilprin. Prof. Heilprin was elected a member of the Society, and Dr. W. M. Crowfoot a correspondent. The President announced the death of Mr. J. Frank Knight, one of the oldest members of the Society, and for a number of years Recording Secretary.—For the Secretary by H. SKINNER.

ENTOMOLOGICAL NEWS for January was mailed Jan. 31, 1890.

Feb.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

VOL. I. APRIL, 1890. No. 4.

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The Inhabitants of a Hickory Nut Hull.

BY JOHN HAMILTON, M. D.

While collecting Hickory-nuts last October the hulls or husks of several of the species were observed to be inhabited by some lepidopterous larvæ, and to ascertain their parentage, some of these hulls were thrown into a capped glass-jar and kept in my office.

January 8th, two ♂ specimens of a beautiful hymenopterous parasite appeared belonging, according to Mr. Cresson, to the genus *Pimpla*. On cutting open one of the hulls a nearly matured ♀ nymph was found in its host's cell, of which all that remained was the horny head; the long ovipositor ascended over the tip of the abdomen and extended along the centre of the back reaching the labrum. This example lay naked in the cell formed by the larva of the moth, having made no cocoon.

February 9th, two moths appeared, and another small, but beautiful parasite, which Mr. Cresson determined to be *Phanerotoma* (*Sigalphus*) *tibialis* Hald. (Proc. Acad. Nat. Sci. Phila. 2d s., iv, 203) the larva of which forms a thick silky cocoon in the

cell of its devoured host, though three or four crawled out and spun up against the glass. This species has heretofore been known to prey on the larvæ of another Hickory Tortricid which feeds on the leaves, *Acrobasis caryæ* Grote, Papilio I, 13 and 14. It is much smaller than the *Pimpla*, which may be accounted for by the fact that the larva of the latter wastes none of its substance in forming a cocoon, and the perfect insect appears much larger than its host.

The moth was courteously determined by Prof. C. H. Fernald, and proves to be a Tortricid long known to microlepidopterists as an inhabitant of Hickory-nut hulls. It was first described by Fitch (N. Y. Agric. Rept. xvi, 459, 1856) under the name *Ephippophora caryana*, now *Grapholitha;* and again by Shimer (Trans. Am. Ent. Soc. II, 394) as *Grapholitha caryæ*. The larva when full grown excavates a cell in the hull several times larger than itself, which it lines with a silky gum. It is then about .25 inch. in length, white, except a luteous head, and 16-footed. The pupa is pale clay colored, .20 inch. long, and has on the posterior margin of each segment a transverse row of erect teeth which enables it to move about its large cell with great ease. The anterior wing cover of the moth is dusky black, with a sprinkling of scales—golden, purple and blue, and a silvery blotch near the tip. Expanse .50 to .60 inch.

The nuts attacked in their earlier stages usually abort and fall, or fail to produce a perfect kernel. In furnishing these beautiful parasites nature has been very kind to the country and village boys, as without this protection Hickory-nut hunting would not often be one of their chief autumnal pleasures.

A full grown larva, while under observation, stepped from the table, but like its leaf-rolling kindred, it let itself down very gently by a suddenly improvised thread. This was rather a surprise, as it is not known to leave the interior of the hull voluntarily till it comes forth with wings. Some evolutionists may interpret this as proof of an ancestry that had business in the outside world.

In compliance with my request, Mr. E. T. Cresson has kindly furnished a description of the *Pimpla*.

[**Pimpla grapholithæ** n. sp.—♀. Head rufopiceous, smooth and shining; vertex, face and mandibles, except tips, fusco-testaceous; palpi and scape beneath white, remainder of antennæ black; thorax smooth and polished, impunctate, fulvous or honey yellow; metathorax piceous; tegulæ white;

wings hyaline, iridescent, nervures brown-black, upper nervure of third discoidal cell bent downwards at about the middle, so that the cell is narrowed at base; legs, including coxæ, white; spot on coxæ and trochanters within, broad stripe on femora within, tips of four posterior tibiæ and of their tarsal joints, black; abdomen brown-black, rather closely punctured, segments 2–5 above with a rounded elevation on each side about the middle; segments 1 and 3–5 quadrate; segment 2 rather longer than broad; ovipositor as long as the body, honey-yellow, sheaths black. Length .40 inch.

♂.—More slender than the ♀; head, metathorax and abdomen jet-black; face with a fine whitish pubescence; all the abdominal segments longer than broad and clothed with a short, fine, whitish sericeous pubescence; basal segment above with a longitudinal central groove. Length .37—.40 inch.

Described from one female in collection Amer. Ent. Soc. from Missouri, and two males reared by Dr. Hamilton, as stated above. —E. T. C.]

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NOTES ON LEPIDOPTERA.

BY HENRY SKINNER, M. D.

A SPHINX NOT KNOWN IN AMERICAN COLLECTIONS.—*Protoparce dalica* was described by Kirby in Trans. Ent. Soc. London (1877), p. 243. Locality Canada. There is a good figure of it on page 70 in the "Aid to the Identifications of Insects," Vol. 1, by C. O. Waterhouse. Dr. H. Strecker thinks this is an aberrant form of *P. rustica*, and such it will likely prove to be.

ARCTIA PALLIDA Pack.—Prof. J. B. Smith, in "Can. Ent." February, 1890, p. 35, says "the type of *pallida* is in the collection of the Am. Ent. Soc., where I have several times seen it. It is certainly not an *Arctia*, but perhaps nearer *Seirarctia*." The specimen in the collection of the Society was marked type on the authority of Mr. Aaron. He showed it to Prof. Packard, when he was here on a visit, who said he thought it might be his type. The specimen has a Pennsylvania locality label on it, and also Dr. Lewis' name. In the original description of the species Prof. Packard says, "I am indebted to Mr. Calverly for the loan of this fine, and apparently very rare species." Locality given is New York. The specimen in question, in my opinion, is an aberration of *Hyphantria cunea* of Drury, but it also answers to the description of *A. pallida*. Is *pallida* known to exist? has any one the species? Is our specimen the type?

In "Notes on Cuban Sphingidæ," Proc. Ent. Soc. Phila., p. 79, 1865, Mr. Grote refers to *Œnosanda noctuiformis* Walker, and refers to the specimens in the collection Ent. Soc. of Phila. which came from Cuba, and were presented by Prof. Poey, being No. 835 of his MS. catalogue. I have compared these with specimens in our North American collection labeled *Cautethia Grotei* Hy. Edwards, and can see no specific differences. If there is no difference between the Florida and Cuban specimens it seems likely that there is but one species inhabiting the West Indies and that Walker's type from San Domingo represents the same thing. If but one species is found in San Domingo, it will probably be found to be identical with the one inhabiting Cuba and Florida.

Some Synonymy.—*Phyciodes ianthe* Fab., = *Acca hera* Hüb. Samml. Ex. Schmett. Band 2, figs. 1 and 2 ♂, 3 and 4 ♀ = *Eresia Texana* Edw., Pr. Ent. Soc. Phila., 2, 81, 1863, = *Smerdis* Hew., Ex. But. 3, pl. 5.

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NOTES ON COLEOPTERA.

BY CHAS. LIEBECK.

While visiting some friends near Landisville, N. J., during the summer of 1888, my attention was directed to the damage caused by the common Rose bug, *Macrodactylus subspinosus* Fab., to the young grapes in their vineyard, situated about two hundred yards from their house. About the same time they planted a few rose bushes of the common free blooming variety in front of the house. In June, 1889, the beetles again made their appearance in large numbers, but showed a decided preference for the roses, not molesting the vines in the least. The bushes, at a short distance, appeared to be scorched, but a nearer view showed that they were being devoured by the beetles, and although the bushes had grown to a large size, bearing hundreds of buds and flowers, none seemed to have escaped their voracity. If others similarly afflicted would plant a hedge of roses in the vicinity of their vineyard it may prevent damage by this pest to their grapes.

TWO NOVEL BEETLE TRAPS.

During the warm days in the early spring of last year I was collecting Coleoptera in the fields towards evening, taking such

species as generally fly just before dark. I usually selected a piece of meadow-land with a bank of earth five or six feet high running through it, thus making it easier to see the insects against the horizon as they flew over. Accompanied by a white setter dog, I happened to glance at him while sitting by my side and noticed a number of specimens running along his back among the hair. I captured these, and laughable as it may seem, thereafter found it much more profitable to send him running along the top of the bank and act as a trap, than by the usual method. I took numbers of small Carabidæ, Staphylinidæ, Scydmænidæ, Pselaphidæ and Nitidulidæ in this way, which were evidently attracted by his white coat in the semi-darkness. A wide ditch, the surface of which was covered with a small floating water plant, a species of Lemna, served as the other trap. A large swamp-oak on its borders was very attractive at night to numbers of Lachnosterna, which, in returning to the ground in the morning, flew into the water, no doubt mistaking it for solid ground, where they staid until their sluggish movements met the eyes of a collector happening that way soon after, when they were immediately fished out and transferred to his bottle. Although a large number of specimens were taken, I believe, but two species were represented, *L. micans* Knoch. and *L. hirticula* Knoch.

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NOTES ON ELATERIDÆ.

BY GEO. H. HORN, M. D.

In the Annales Soc. Ent. Belg., 1889, Dr. Candeze resumes his descriptions of Elateridæ in a "Quatrieme fascicule" of fifty-seven pages. The descriptions are brief, but ample, and concerning them he makes the following comment, which I translate :

"Entomologists have been often able to observe that it is not the longest descriptions which are the best. By too many details, in which one loses himself, and which apply definitely and very often to the specimen only which the describer had before him, it becomes impossible to figure to one's self the species which it is desired to recognize."

The following North American species are described :

Alaus canadensis. Allied to *myops*, but with the dark color of *melanops*. I have a specimen from Canada which responds fairly to the description, which seems hardly specifically different from *myops*.

Monocrepidius peninsularis. Compared by Candeze with *vespertinus*, and from the series in my cabinet, certainly a variety of it. Florida.

Heteroderes lantus. The species of *Heteroderes* were included by LeConte in Monocrepidius. From the description *lantus* is about the size of *vespertinus*, and of the color of *sordidus*. It is of the type (*fide* Cdz) of certain East Indian species, and I suspect requires further confirmation as a member of our fauna. Florida.

Dr. Candeze, in passing, speaks of the revision of Drasterius by LeConte in 1884 (posthumous), and says that the union of several under the name *elegans* seems "rigoreuse." It is probable that sufficient cause determined such action on LeConte's part.

Melanotus peninsularis. This is the species determined by LeConte as *clandestinus* Er. and distributed as such in all our collections. Florida.

Corymbites trunculentus. Black, thorax with ferruginous side margin; elytra ferruginous brown. Allied to *volitans* and *sagitticollis*. Long. 14 mm. California.

Corymbites urostigma. Brown, elytra with apical testaceous spot; third joint of antennæ long. Long. 13 mm. California.

Corymbites gracilis. Æneo-piceous, third joint of antennæ shorter than the fourth. This is, without doubt, *C. monticola* Horn, from the same region. N. California and Oregon.

C. floridanus. Closely allied to *divaricatus*, and differing in having the hind angles shorter and not divaricate. My examination of a specimen sent me led me to believe it merely a variety of that species. Long. 9 mm. Florida.

Asaphes Lecontei. This is a species which has long been in our cabinets unnamed, as I have never been able to satisfy myself as to the proper genus. It is of piceous color, elytra yellowish testaceous, the suture and border darker.

Sericus Behrensi. This is *Sericosomus incongruus* Lec., which Candeze seems to have lost sight of. The name is in his index as *Atractopterus incongruus*, but no mention of it occurs in the volume.

In addition to the above I desire to make known two interesting items furnished me by correspondents :

Megapenthes limbalis Hbst., is the male, and *granulosus* the female of the same species. Mr. M. Linell informs me that they have several times been taken in copulation by himself and others. Certainly, all the specimens I have seen confirm this, as the one is always male the other female.

Corymbites inflatus Say, is the male, and *crassus* the female of the same species. To Mr. Frederick Blanchard this information is due, and he has made the same observation here as has been made in the preceding species.

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LIST OF THE DRAGONFLIES (ODONATA)

Taken at Manchester, Kennebec Co., Me., in 1888 and 1889.

BY MISS MATTIE WADSWORTH.

(Continued from p. 37, Vol. 1.)

22. **Cordulegaster maculatus** Selys.

1888, June 19, to July 11. 1889, May 15, June 6, 13, 22, 24. This species not very common, but several ♂ ♂ seen on dates mentioned flying directly over brook and following its course. Few ♀ ♀ observed.

23. **Cordulegaster obliquus** Say.

1889, June 29, one ♂, near brook.

Tribe III.—LIBELLULINA.

Subfamily 5. CORDULINA.

24. **Macromia transversa** Say.

1888, May 27, to July 10. 1889, May 15 to June 25. A very common species in woods, field and near brook.

25. **Epitheca Walshii** Scud.

1888, July 16, one ♂, near brook.

26. **Epitheca forcipata** Scud.

1889, May 29, one ♂, in woods.

27. **Cordulia semiaquea** Burm.

1888, June 15 to July 9. 1889, May 15 to June 28. A very common species in woods, near water and everywhere.

28. **Cordulia lepida** Selys.

1888, July 11, one ♀, near brook.

29. **Cordulia libera** Selys.
1889, June 6, one ♂.

30. **Cordulia Uhleri** Selys.
1889, May 18, 23, 25, two ♁, three ♀ taken. All near road.

31. **Cordulia princeps** Hagen.
1889, June 19, 24, one taken each day. Near road and brook.

32. **Cordulia** new? species.
1889, May 29, one ♀, near woods.

Subfamily 6. LIBELLULINA.

33. **Libellula exista** Say.
1888, June 15; July 7, 9. 1889, May 18 to June 25. This species quite common near woods and brook.

34 **Libellula quadrimaculata** Linn.
1888, June 19; July 8–11. 1889, May 15 to June 24. A common species in 1889.

35. **Libellula pulchella** Drury.
1888, July 7 to Aug. 2. 1889, June 25 to July 16. This species observed near water, woods, and in open fields.

36. **Libellula incesta** Hagen.
1889, June 18, 19, 22, 25; July 9, 16. But few of this species taken. Near lake, woods, and in road.

37. **Libellula semifasciata** Burm.
1889, June 21, one ♁; July 11, one ♁. Near brook.

38. **Leucorhinia intacta** Hagen.
1888, June 16, one ♁, in open field. 1889, May 25 to July 4. A very common species (1888) near brook, woods and road.

39. **Leucorhinia proxima** (Hagen mss.) Calvert.
1888, July 10, 11, 16. One ♁ taken each day, all near brook.

40. **Diplax rubicundula** Say.
1888, June 29 to July 30. 1889, June 28 to Aug. 21. A very common species everywhere.

41. **Diplax vicina** Hagen.
1888, Aug. 1 to Oct. 11. 1889, Aug. 3 to Oct. 9. This species also very common everywhere.

42. **Diplax costifera** (Uhler ms.) Hagen.
1888, Sept. 6. 1889, Aug. 2 to Sept. 14. This species quite common, but all taken were females.

43. Diplax new? species.

1888, Aug. 6, one ♂, five o'clock P. M., in field.

One or two specimens of each of the species mentioned in the foregoing list were identified by Mr. Philip P. Calvert, of Philadelphia, and from these the others were identified by me. All the species noted were taken in Manchester, Kennebec Co., Me.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

"ENTOMOLOGY must always be, as it undoubtedly is at this time, not only a useful, but a popular study, and must contribute, perhaps, more than any other to the enjoyment and recreation, mental and physical, of those dwellers in towns who possess a true appreciation of the pleasures and interests attaching to country life. I think it would be difficult to over-estimate the civilizing and refining effect which a day in the country with the object of gaining an insight into the marvels of natural creation, none the less wonderful because in themselves common and widely distributed, must have upon the minds and characters of all who seek such enjoyment."—LORD WALSINGHAM.

WRITING from Darjeeling, British Sikkim, under date of Jan. 13, 1890, Miss Adele M. Fielde refers to a visit she paid to the shop of Mr. Paul Möwis, dealer in Tibetan curios and butterflies, 1 Victoria Terrace. Mr. Möwis is one of the five Europeans who has ever traveled in Tibet. He makes very valuable collections of Himalayan butterflies, which he sends to museums in all countries. He exhibited to Miss Fielde the male of a pair of butterflies (*Teinopalpus imperialis*) whose mate he had sold to a museum in Berlin for £25 sterling. This was the largest sum he had ever received for an insect. The male was exquisitely beautiful, bright green and gold. The female was said to have "six tails."

Miss Fielde incloses a beetle of the family Chrysomelidæ, which she obtained from a ragged girl on the Himalayas, who brought it to the train for sale. When she took the insect in her hand she at first thought it must have been artificially gilded, so truly like metallic gold was its ornamentation. This does not remain after death.

Dr. DAVID SHARP, the eminent entomologist, and late President of the Entomological Society of London, has accepted the appointment of Curator of Zöology in the Museum of the University of Cambridge.

In answer to Dr. Skinner's article in Entomological News, Vol. 1, p. 20, in which he desires to correct an error I made in describing the cocoon of *Callosamia angulifera*, I should like to say that the cocoon of *angulifera*, which I bred, could only be distinguished from that of *Promethea* by its larger size. I have also distinct evidence that the larva of *angulifera* will spin a silken thread, by means of which it hangs to branches of trees. The cocoon of *angulifera* when spun on the ground is exactly as Dr. Skinner describes it. I was unacquainted with this form when I made my description (Ent. Am. V. p. 200).—Wm. Beutenmuller.

What Mr. Beutenmüller says is undoubtedly true, *angulifera* does spin a thread occasionally, but it is the exception that proves the rule. Mr. Philip Laurent, in a large collecting experience found one suspended, all the others he has found were under tulip poplar trees. Mr. F. M. Jones sent me one with the silken thread. I have collected in a single day more than a quart of *angulifera* cocoons, not all of them alive, however, and never saw one suspended, and for negative evidence I may say I have found thousands of *promethia* cocoons on poplar, etc., and never had an *angulifera* emerge from them.—H. Skinner.

Lord Walsingham, in his Presidential address, estimated the number of species of insects as upwards of two millions, and further said, "we may well ask ourselves who can venture to assume the appellation of 'Entomologist?' or even of Lepidopterist or Hymenopterist? Surely, our successors in this Society must one day be content to be called Pieridists, Gelechidists, Hispidists, or Cicindelidists, according to their different branches of study."

"We have abundant evidence that the whole field of zöological research apart from Entomology is but small as compared to that in which the Fellows of this Society (Ent. Soc. London) are interested, when we see that in Central America one small family of Coleoptera, the Hispidæ exceed the whole of the mammalia."

Dr. W. L. Abbott has left the Kilimanjaro region. He was heard from at Zanzibar, and intended to leave there shortly to study the fauna of the Comoro Islands and Madagascar.

Erebia epipsodea. In "Butterflies of North America," Pt. 9, Vol. iii, Mr. W. H. Edwards gives us a very interesting account of *E. epipsodea*. He gives as its geographical distribution "Middle Colorado northward to the Arctic Sea." It comes, however, a little further South than this, and it may be worth while to fix its most southern point as at present known. Mr. H. W. Nash informs me that he has taken it at Music Pass, Custer County, Col., and at Bonanza, Sagmache County, Col. The first of these localities is about N. Lat. 38°, the other is rather more northern.—T. D. A. Cockerell, West Cliff, Custer County, Col.

On January 20th, while in Baltimore, I captured a fine specimen of *Chion cinctus* Drury, crawling on the sidewalk. *Ergo:* the early bug catches the pin.—C. A. Blake.

Entomological Literature.

Trans. Ent. Soc. London, for the year 1889, Part IV, "On some Lepidoptera from New Guinea," by Edward Meyrick. This paper consists of sixty-seven pages, in which a number of new genera and species of moths are described. "On the distribution of the Charlonia group of the genus Anthocharis," by George T. Baker. "A revision of the genus Argynnis," by Henry J. Elwes. A new species is described under the name *hanningtoni;* it was taken at Taveta, near Mt. Kilimanjaro, in Africa. This paper is a very interesting and important one to American students, and will probably be reviewed later at some length. "Additional notes on the genus Hilipus," by Francis P. Pascoe.

From the Proceedings of the United States National Museum "Annotated Catalogue of the Insects collected in 1887-88," by L. O. Howard. The insects received were the part products of the scientific results of explorations by the U. S. Fish Commission steamer "Albatross." The *Hemiptera* were sent to Prof. P. R. Uhler, of Baltimore, Md.; the *Orthoptera* to Mr. Lawrence Bruner, of Lincoln, Neb.; the *Diptera* to Prof. S. W. Williston, of New Haven, Conn.; the *Lepidoptera* to Rev. W. J. Holland, Pittsburgh, Pa.; and the *Mallophaga* to Prof. Herbert Osborn, of Ames, Iowa." Dr. Holland describes, as new to science, *Protoparce calapagensis* from Charles Island, Galapagos.

The Entomologist, February, 1890.—"New species of Lepidoptera from China," by J. H. Leech. The specimens were collected near Ichang, Central China, and fifty-six new species are described, all diurnals. "Coleoptera at Camber during 1889." "An entomological tour on the Tableland of Mount Arthur," by G. V. Hudson." "On the occurrence of *Hesperia lineola* in Essex," by A. J. Spiller. *Rhopalocera* in Switzerland. "On the variation of *Heliophobus hispidus* at Portland," by N. M. Richardson. "Gas-lamp entomology," by J. Arkle. The remaining part of the number consists of notes, captures, etc., and the doings of societies.

"Rhopalocera nihonica: a description of the butterflies of Japan," by H. Pryer. Part 3 for December, 1889, has arrived, completing the work. Owing to the lamentable and untimely death of the author on the 17th of February, 1888, the preparation for the press of the unpublished portion of the work was undertaken by James Bisset, F.L.S. The text is in English and Japanese, and colored figures, notes, description of species, time of appearance and food-plants are given.

Trans. Kansas Acad. Sc. Vol. 11, 1887-88.—"Notes on the early stages of *Nerice bidentata, Anisota stigma* and *Callimorpha suffusa*," by C. L. Marlatt.

Annals and Magazine of Natural History.—"Description of a new genus of Oriental Cicadidæ," (*Talainga*) by W. L. Distant. "Description of two new species of *Acræa* from Mombasa," by H. Grose

Smith. "Observations on some Coleoptera from the Bonin Islands," by C. O. Waterhouse and C. J. Gahan. "Description of three new species of butterflies from New Ireland," by H. Grose Smith. "Seasonal dimorphism in Japanese butterflies," by Dr. Adolf Fritze.

"Les Parnassiens de la Faune Palearctique," par Jules Léon Amstat, Leipzig, 1889.—This is practically a monograph of the genus, all the species being mentioned, except our American *Parnassius clodius*. There are two hundred and twenty-two pages devoted to descriptions, history, etc., of the species and varieties, and thirty-two plates, representing a number of figures delineating the species, varieties and comparative anatomy. The figures are fine examples of chromo-lithography.

"S. African Butterflies: A monograph of the extra-tropical species," by Roland Trimen and James Henry Bowker, Vol. 3.—Papilionidæ and Hesperidæ. This volume completes the work; it contains four hundred and thirty-eight pages and twenty-eight colored figures. These three volumes make a very valuable addition to the literature of the subject, and are very exhaustive.

The Zoologischer Anzeiger for Feb. 10, 1890, contains a summary of J. Carriere's studies "On the embryological development of the Wall Bee (*Chalicodoma muraria* Fab.)

Le Naturaliste for Feb. 15, 1890, contains an article by L. Cuénot, "On the means of defense of Arthropods," including references to insects, and P. Dognin describes a new lepidopter from Loja, *Oxytenis? ecuadorensis*.

The Entomologischie Nachrichten (Berlin) for February, 1890, contains "*Pentathemis membranulata*, a new Australian Libellulid with five-sided cardinal cell," by Dr. F. Karsch, describing a new genus *Pentathemis* (family *Cordulina*), type *P. membranulata* n. sp. from Torres Strait, with a woodcut of forewing. "On varieties of European Cicindelidæ," by H. Beuthin. "On Galls and Gall-flies from flower-heads of various Compositæ (continued)," by J. J. Kieffer, including *Cecidomyia florum* n. sp. "New Histeridæ (Coleoptera)," by Joh. Schmidt (continued), nine species of the genera *Stictostix*, *Tribalus*, *Pelorurus* and *Saprinus*, from Australia, Africa and South America. Some shorter notes and notices of recent entomological works.

Indian Museum Notes (economic) Vol. 1, No. 2; one hundred and twenty pages, three plates, Calcutta, 1889; published by authority of the Government of India.

In Le Naturaliste (Paris) for Feb. 1, 1890, Ed. André has a note on "Les larves de Malachius (Coleoptera, fam. Malacodermidæ)," with two woodcuts of the larva of *M. bipustulatus*. P. Dognin diagnoses two new Lepidoptera from Zamora, Amaluza and Loja—*Acidalia adela* and *Caberodes snellenaria*.

The Orvos-Termeszettudomanyi Ertesito (Medical and Natural Science Communications, being the organ of that Section of the Transylvanian Museum Union), Vol. XIV, 3 heft, 1889, contains "Contributions to the Coleopterous fauna of Transylvania," by L. V. Méhely. It is a list of species with notes in Hungarian. A German summary is given p. 295; also a "Notice of his entomological excursion into Széklerland," by Dr. A. Balint; a general list of insects taken.

Le Naturaliste Canadien for January, 1890, contains notes on the Jassidæ (Hemiptera-Homoptera) of the province of Quebec, and describes as new,—*Thamnotettix decipiens* and *Bythoscopus pruni* (Fitch ms.)

In the Transactions of the Maryland Academy of Sciences for 1888–89, pp. 33-44, Prof. P. R. Uhler describes some "New genera and species of American Homoptera." The new genera are *Scaphoideus* (fam. Jassidæ), type *J. immistus* Say and three new species; *Dyctidæ* (fam. Issidæ), type *D. angustata* and one other new species; *Dictyobia* (Issidæ), type *D. permutata* n. sp.; *Dictyonia* (Issidæ), type *D. obscura* n. sp., *Danepteryx* (Issidæ), type *D. manca* n. sp.; also a new species of *Tilicen* (*cupreo-sparsa*). Most of these new species are from California.

In Il Naturalista Siciliano for Dec. 1, 1889, B. Grassi and G. Rovelli publish their sixth memoir on the Progenitors of the Myriapods and Insects by a (continued) study on the Italian *Thysanura*. Four new species of *Lepisma* are described.

We have received from the author a copy of "Die Tagfalter (*Rhopalocera*) Europas und des Caucasus. Analytisch bearbeitet von K. L. Bramson. Kiew. Verlag des Verfassers, 1890." In this work Prof. Bramson publishes analytical tables of the families, genera and species of the butterflies of Europe and the Caucasus, with notes on the distribution and time of appearance of each species. A list of all the species (330 in number) with their varieties and synonyms, and alphabetical lists of the families, genera and species are given. One plate showing the terminology of the wings and head of a lepidopter accompanies this work, which ought to be of great use to students of the European *Rhopalocera*.

R. Moniez has a (continued) paper on the "Acari and Marine Insects of the sides of the Boulonnais" in the "Revue Biologique du Nord de la France (Lille)," 2me Année, No. 5, Fevrier, 1890.

The Entomologisk Tijdskrift (published in Swedish, with short resumés in French, by the Entomological Society of Stockholm) Arg. 10, 1889, Häft 1–4, contains, besides other notes, the continuation of H. D. J. Wallengren's "Skandinaviens vecklarefjärilar," relating to the Tortricidæ. "New contributions to the myriopodology of Scandinavia," by C. O. v. Porat. Lists of entomological papers of 1888, relating to Scandinavia and Finland, and a new species of *Charaxes* (*regius* from the Cameroons), by Chr. Aurivillius.

The Zweite Abtheilung of Dr. Arnold Lang's Lehrbuch der Vergleichenden Anatomie (Text-book of Comparative Anatomy), Jena, 1889, contains that portion of the work treating of the Insecta. According to the classification here adopted the Insecta (*Hexapoda*) are divided into sixteen orders. Dr. Lang successively treats of the External Organization, Integument, Musculature, Alimentary Canal, Nervous System, Sense Organs, Circulatory System, Fat Bodies, Respiratory System, Sound-producing Apparatus, Sexual Organs, Dimorphism and Polymorphism, Development and Life-history, and Phylogeny of Insects. A bibliography of important works on the anatomy, development, etc., of insects completes this section.

Zoologischer Anzeiger for January, 1890, No. 326, contains "Further observations on the Dorsal Gland in the Abdomen of *Periplaneta* and its allies," by Edw. A. Minchin. "Note on the Sexual Apertures of the Lepidoptern Chrysalis," by W. Hatchett Jackson. Note on H. T. Fernald's paper entitled, "External Sexual Markings of Pupæ."

"Butterflies of North America," by W. H. Edwards, third series, part 9, contains figures and descriptions of *Arg. nevadensis* ♀, *A. halcyone* ♀. Life-history of *Arg. aphrodite*, *Satyrus pegala*, *Sat. alope* var., *Erebia epipsodea*, figures and life-history, also figure of *epipsodea* var. *Brucei*.

Entomologist's Monthly Magazine, February, 1890, "*Gelechia portlandicella* n. sp." by N. M. Richardson. "*Neplicula auromarginella* n. sp." by N. M. Richardson. "Description of the *Micropteryx* of the hazel (*M. Kaltenbachii*)," by H. T. Stainton. "Notes on Dr. Jordan's observations on Norwegian Lepidoptera," by W. M. Schöyen. "On the Coleoptera found in a small mossy bank at Knowle, Warwickshire," by W. G. Blatch. "Notes on the metamorphoses of two species of the genus *Tinodes*," by Kenneth J. Morton. "Observations on Coccidæ," by Albert C. T. Morgan. *Diaspis zamiæ* n. sp. described. "Descriptions of new species of South American Halticidæ of the group *Œdipodes*," by Martin Jacoby.

American Naturalist, January, 1890, "Rectal Glands in Coleoptera," by H. T. Fernald.

Queries and Answers.

P. C. Truman writes, "will you kindly give me a little aid through the News. Some of my set specimens of butterflies and moths show spots, which have seemed to slowly spread. These spots are darker than the balance of the wing, and they look shiny and oily. What is the matter, and what is the remedy?"——The disfigurement is due to oil being absorbed by capillary attraction into the wings from the body. Why some specimens grease and others do not is probably not known. Take a tum-

bler or other convenient vessel and press into the bottom of it a piece of cork so that it will remain tightly wedged, then pin in your oily specimen and pour in the glass enough gasoline, refined benzine or chloroform, to cover it to the depth of an inch above the wings, and then cover the glass to prevent evaporation. Allow it to remain for three-quarters of an hour, then take out the specimen and put it to dry in a place free from dust. This treatment makes them look fresh and bright, and relieves them of all traces of oil. If afterwards the specimen needs resetting it can be relaxed as usual. The same gasoline can be used a number of times.

Dr. A. E. Kunze writes as follows: "As a suggestion I would offer the desirability of giving stations for insects the same as botanists give localities for all plants inhabiting a certain radius of miles. Botanical catalogues of local stations are issued by several societies. Is it not feasible in the field of entomology? Why not try the experiment? Would it not assist working entomologists? Surely many insects are as local as plants."—— This has been done to a certain extent, but not as commonly as in Botany. Careful and accurately made local lists are very useful to the collector, the student of geographical distribution and the economic entomologist, and their value is enhanced if the dates of occurrence are given.

Doings of Societies.

Entomological Section Academy Natural Sciences of Philadelphia, Feb. 27, 1890.—Members present: Messrs. Cresson, Martindale, Smith, Blake, Ridings, G. B. Cresson, Laurent, Skinner, Calvert, Liebeck, Westcott, Castle and Seeber. Dr. Geo. H. Horn, Director, in the chair. Mr. Martindale exhibited a living specimen of *Belostoma Americana?* which had cut off a water supply by being wedged in a pipe, and had been found by the aid of a plumber. He stated that he had endeavored to find a description of the species, but had failed, as nearly all authors attributed the description to Leidy in Vol. 1, 2d ser. Jour. Acad. Nat. Sci. Phila., p. 58, but it is not given there. The poisonous character of the insect, and its habit of preying on shell fish, young trout and other fishes, were discussed at length. Mr. Charles Liebeck exhibited specimens of a new species of *Cenbrinus*? which he had first noticed in June, 1886, feeding on Chenopodium album, a plant introduced from Europe. Dr. Horn said the species was indigenous, for the reason that the genus was not found in Europe. He also called attention to the small characters in the Coleoptera, which are often overlooked, and spoke of their importance from a classificatory standpoint, for if they were properly studied it was not unusual to find them develop into larger structures which could be used to advantage in classification. He promised to speak later on in regard to *Cercyon* and its allies, and their mutual relationship. Mr. Liebeck donated to the

cabinet specimens of *Tachygonus centralis* and *Mecynotarsus candidus*. Mr. Calvert presented one male type of *Leucorhinia proxima* n. sp. and one female of *L. intacta* Hag.

Colorado Biological Association, West Cliff, Feb. 1, 1890.—Mr. Cockerell exhibited a number of galls found at West Cliff, Col., including those of *Rhodites fusciformans* n. sp., *R. bicolor* Harr., *R. rosæfoliæ* Ckll., *R. ignota* O. S., *Cecidomyia salicis-siliqua* Walsh.

February 22d.—Mr. T. Charlton exhibited specimens of *Cemthophilus maculatus* Scud., which he had found in the Powhattan Mine, near Rosita, Col., about 250 feet from the entrance. Two subterranean occurrences of this species had already been recorded by Packard ("Cave Faun. of N. Amer." p. 72) in Massachusetts and New York. Mr. Cockerell exhibited an apparently new genus and species of Elateridæ found at West Cliff, and remarked that this insect was now being studied by Dr. Horn, with a view to ascertaining its precise relationships. On behalf of Mr. H. G. Smith, Jr., the following Coleoptera, collected by him at Denver, were exhibited: *Bruchus obsoletus* var. *fabæ* Riley, *Euryomia inda* L., *Silpha lapponica* L., *Chauliognathus basalis* Lec. and *Hippodamia convergens* Guér. A letter from Mr. L. Bruner, containing identifications of Colorado Orthoptera was laid before the meeting. Among the Orthoptera was an apparently new species of *Ameles* from Custer County.

T. D. A. Cockerell, Sec.

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MORE MISTAKES.

Some of our readers have kindly pointed out a number of oversights in proof-reading, which we desire to correct.

Page 15, line 30, for *Tenzera* read *Zeuzera*. An unsuccessful attempt was made to correct this error in the errata given at bottom of page 47.

Page 21, line 16, for 1886, read 1836.
" 26, " 20, for Abcanthia read Acanthia.
" 27, " 20, for symmetrical read asymmetrical.
" 29, " 18, for Frohaws read Frohawk.
" 30, " 19, for Cobhane read Cobham.
" 30, " 33, for Limnophilas read Limnophilus.
" 48, last line, for January read February.

☞ Entomological News for January was mailed Jan. 15, 1890; for February, Jan. 31, 1890; for March, Feb. 27, 1890.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

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What are the uses of bright colors in Hymenoptera?

BY T. D. A. COCKERELL.

Following somewhat on the lines indicated in my letter published in the February number, p. 27, with the editor's permission, I will put the above question to your readers. Hereafter, I may have something to say on the uses of color among insects in general, but the present question seems so suitable for general investigation that I will briefly give some of the *pros* and *cons* and leave your readers to work the matter out themselves if they will. In that admirable work, "Darwinism," Dr. A. R. Wallace lays considerable stress on "Warning coloration," and shows that many animals are conspicuously colored as a sign that they are dangerous or inedible. With insects this is said to be specially noticeable, and thus insectivorous birds and other enemies of the insect tribes get to know and avoid those they cannot eat, to the great advantage of such.

On p. 233 of "Darwinism" is a reference to the Aculeate Hymenoptera in this connection, as follows: "We all know how well marked and conspicuous are the colors and forms of the stinging wasps and bees, no one of which in any part of the world

is known to be protectively colored like the majority of defenceless insects. Reading this I at once called to mind the numerous dull-colored species of *Andrena*, *Halictus* etc. and the brilliantly-colored non-aculeate Chrysididæ and Chalcididæ, so that it seemed to me that in this case, at any rate "warning coloration" was not self-evident, so I submitted the point to Dr. Wallace, himself, who replied:

"Though the Andrenidæ are not usually gayly colored, yet they are not inconspicuous. The Chrysididæ are, I should think, colored so brilliantly partly, perhaps, to simulate stinging species and partly to prevent their being taken for fruits or seeds when rolled up. They are very hard, and like many hard beetles are colored as a *warning of invisibility*." (A. R. Wallace in litt. Feb. 10, 1890).

Here it would be interesting to learn whether the Chrysididæ are eaten by insectivorous birds. A spider, *Xysticus cristatus*, has been recorded as preying on *Chrysis ignita* in Lincolnshire, England, by Mr. H. W. Kew.

But to return to the aculeates: are they notable for warning coloration? To ascertain the exact state of the case from one who has paid much attention to the subject, I applied to Mr. Ashmead and here is his reply:

"The family Chalcididæ is without doubt the most extensive in the order and taken as a whole the most brilliantly colored, no other family, not even excepting the Chrysididæ, can compare with it in the metallic brilliancy of its members. * In my opinion, when the species are thoroughly worked up, in this single family alone, their members will more than double the species in *all* the families of the *Aculeata* taken together, so numerous are they.

"It is really only among the parasitic bees that we find much brilliant metallic coloring, a few genera in Apidæ and Andrenidæ.

"In Andrenidæ only two genera, *Augochlora* and *Agapostemon*, are very brilliant, although some *Halicti* show some.

* Although the Chrysididæ are classed with the bees, ants, fossorial wasps, etc., in the Aculeata, they are not aculeate. Mr. Ashmead has briefly stated other differences, perhaps the most important of which is that the Chrysididæ, although quite active when alive, and having as true aculeates with the bees, perfectly developed wings, are usually to be found dead, resting on [illegible] when [illegible] they are found in connection with the Hymenoptera. I agree with Mr. Ashmead in considering these characters as fully as important as those which separate the Chrysididæ from the Aculeata, and so [illegible] Chrysididæ [illegible] the Aculeata, and [illegible] the Chrysididæ with Apidæ, Vespidæ, Sphegidæ, and Formicidæ, [illegible] Aculeata. [illegible] Ed. Ent. News.

"I am of course speaking of the insects found in N. America as I am not very familiar with exotic or oriental forms.

"In family Vespidæ there are none; in Eumenidæ none; in Masaridæ none; in Crabronidæ only a few species in the genera *Trypoxylon* and *Oxybelus* show any and then usually confined to the pubescence, in Pemphredonidæ all are black or ornate with white and yellow; in Mellinidæ and Mimesidæ the same, although sometimes the pubescence is silvery or golden; in the Philanthidæ they are highly colored, but are not metallic, or but seldom show any metallic splendor; in Nyssonidæ and Bembicidæ the same; in the Larridæ some of the forms do, but strictly speaking they are not brilliant, and the metallic coloring is usually confined to the vestiture; the family Ampulicidæ has but one species in America, and that is dark colored. In the family Sphecidæ a large percentage show metallic colors, but only a few are very brilliant; in Pompilidæ only a few, the Sapygidæ are highly colored, but not metallic; in the Scoliidæ only a few forms, while in the Mutillidæ and Formicidæ none that I know of.

"So now you have the showing, the North American Aculeate make, in a nutshell (W. H. Ashmead *in litt.* Feb. 5 1890)."

From which summary it becomes evident that as a whole, the aculeate do not compare in brilliancy with very many of the non-stinging kinds. Nor is it clear that the stings altogether protect the bees and wasps from birds, or render them ineditble. Dr. Wallace remarks (Darwinism, p. 236): "We see that even the powerful stings of bees and wasps only protect them against some enemies, since a tribe of birds, the bee-eaters, have been developed to feed upon them, and some frogs and lizards do so occasionally."

Dr. Riley records that sparrows (*Passer domesticus*) feed on *Halictus*, *Typhia*, *Myrmo* and ants. In no less than thirty there was *Myrmo westwoodi* found in the sparrow's stomachs, and this is a brightly marked (though not metallic) species which, perhaps theoretically should not have been eaten. I have found ants in the stomach of *Sialia arctica*, shot in Custer County, Col. The stomach of a woodpecker, shot by Rev. A. Wright in the same locality, contained a great number of ants, the majority apparently *Formica fusca*, with a few *F. rufa*. In England the tom-tit (*Parus*) is known to wage constant war against *Bombus*.

So clearly, the *Aculeata* do not always escape! *Myzine sexcincta* is marked pretty much as most of the species of *Vespa*, *Odynerus* and *Crabro*, and yet is not protected. So here is the great class of yellow markings on black, apparently useless for warning purposes. The humming and buzzing of bees may likely frighten their enemies in some cases. Certainly it scares those of the genus *Homo* in most cases. But that has nothing to do with the colors.

There seems to be a tendency for insects which are carnivorous in their early stages to be metallic, but there are very many exceptions to this rule. Thus in Coleoptera the Carabidæ are often metallic, but so are many of the plant-feeding Chrysomelidæ and several of the Curculionidæ, while many carnivorous beetles are dull. In Diptera, the blow-fly, *Lucilia*, is metallic. In Hymenoptera, the parasitic Chalcididæ are mostly metallic, while the plant-feeding Cynipidæ are brown, black or yellowish. And so on through numerous examples.

So much then on the colors of the stinging and stingless Hymenoptera. The question remains, what are they for? Why do they exist?

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COLLECTING BY LAMPLIGHT.

BY A. S. VAN WINKLE.

No doubt many entomologists have spent night after night collecting different species of moths which can only be taken after dark. Many a time have I spent night after night, alone, down in the dark forest bordering the Mississippi in collecting on very warm, dark and damp nights when the harvest would be very productive, as many different species of Bombycidæ, Noctuidæ, Geometridæ, Pyralidæ, Tortricidæ, Tineidæ and Pterophoridæ would be captured, while on other nights I would be doomed to disappointment for after being up almost night I would collect little or nothing.

When one reads Dr. Wallace's delightful work entitled, "The Malay Archipelago," giving his experience of collecting in the eastern Tropics, especially the part referring to the subject of moth collecting at night, he cannot fail to appreciate its importance. Knowing full well that the readers of ENTOMOLOGICAL

NEWS, especially those who have not had the pleasure of reading Dr. Wallace's work will be interested in it, and that ENTOMOLOGICAL NEWS is chiefly devoted to this kind of literature I take pleasure in quoting the following passage: "While collecting on the island of Borneo what occupied me most was the great abundance of moths which, on certain occasions, I was able to capture. As during the whole eight years' wanderings in the East I never found another spot where these insects were at all plentiful, it will be interesting to state the exact conditions under which I here obtained them. On the one side of the cottage there was a verandah looking down the whole side of the mountain, and to its summit on the right all densely clothed with forest. The boarded sides of the cottage were whitewashed and the roof of the verandah was low and whitewashed. As soon as it became dark I placed my lamp on the table against the wall and with pins, insect-forceps, net and collecting-boxes by my side, sat down with a book. Sometimes during the whole evening only a solitary moth would visit me, while on other nights they would pour in in a continual stream, keeping me hard at work catching and pinning till past midnight, as they came literally by thousands. These good nights were very few. During the four weeks that I spent altogether on the hill I only had four really good nights, and these were always rainy, and the best of them soaking wet, but wet, rainy nights, were not always good, for a rainy moonlight night produced next to nothing. All the chief tribes of moths were represented, and the beauty and variety of the species was very great. On good nights I was able to capture from a hundred to two nundred and fifty moths, and these comprised on each occasion from half to two-thirds that number of distinct species. Some of them would settle on the wall, some on the table, while many would fly up to the roof and gave me a chase all over the verandah before I could secure them.

(To be continued.)

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NOTE.—By a slip of the pen I quoted Mr. Blanchard incorrectly in the April NEWS. *Corymbites crassus* is the female of *divaricatus*, and *not* as I there stated of *inflatus*.—G. H. HORN.

ELEMENTARY ENTOMOLOGY.

FIRST PAPER—WHAT IS AN INSECT?

While the study of Entomology, or the knowledge of Insects, is one of the most fascinating of pursuits, it is not a matter of wonder that many have been deterred from undertaking it, because of the difficulties with which it is hedged about, and the array of strange, technical words with which it is surrounded. The purpose of these articles is, therefore, to endeavor to popularize the study by explaining, in as simple a manner as possible, the various technical terms which, of necessity, must be employed by scientific writers.

The word Insect is, as a rule, very loosely employed by those who have not studied the subject. Even scientific usage of the word has varied, and Insects are sometimes regarded as equivalent to the group described later on in this paper under the name of Tracheata. In this series the word Insect is used in a restricted sense, and does not include such animals as spiders, centipedes and mites, and yet we would not exclude from the pages of this journal information about such creatures, since we hope to give our readers some very interesting notes on spiders (as well as on ants), from the pen of our fellow-member, the Rev. Dr. McCook, who has made the study of their habits a specialty, and who knows so well how to interest his readers.

Insects may be described as being (1) joint-footed animals, breathing by tracheæ; (2) having the body of the adult divided into three distinct portions,—head, thorax and abdomen; (3) having in the perfect or imago state, one pair of antennæ attached to the head.

(1) The joint-footed animals, or technically the *Arthropoda* (which is the Greek equivalent), are formed on a different plan from the other branches of the animal kingdom. Their bodies are composed of a series of rings (or *segments*), within which are the vital apparatus and muscles. It is true that many of the Worms have their bodies segmented, but no Worms have jointed feet. A vast number of animals are included within the *Arthropoda*,—not only the *Insecta*, but also the *Arachnida* (spiders, scorpions, etc.), the *Myriapoda* (centipedes, millipedes, etc.), certain curious animals known as *Onychophora*, and the *Crustacea*

(crabs, lobsters, shrimps, etc.). It is necessary, therefore, to find some differences which will distinguish the Insects from all other Arthropods.* One of these is the breathing by *tracheæ*, which are tubes, composed of thin membranes kept open by a fine, but stiff, wiry thread twisted spirally throughout the whole course of the tubes. The tracheæ have their external openings, called *spiracles* or *stigmata*, along the sides of the body. From the spiracles the tracheæ pass inwards and ramify in all directions throughout the body. The Crustacea breathe by gills, and hence form a division of the Arthropods called *Branchiata* (from the Greek work *brangchia*, gills). All other Arthropods than the crustacea breathe by tracheæ, or similar structures, and hence form the division *Tracheata*.

(2) The body of an adult insect is divided into *three regions*,—*head*, *thorax* and *abdomen*. In the Crustacea and Arachnida, there are, as a rule, *two* regions, the united head and thorax (*cephalo-thorax*), and the abdomen. In the Onychophorans and Myriapods the body is worm-like, and can hardly be said to be divided into regions (although, of course, segmented); the head, however, is distinct.

(3) Insects, when they have attained their imago or perfect form, have one pair of *antennæ* (or "feelers") attached to the head, three pairs of *legs* which are restricted to the thorax, and usually two pairs of *wings*, also attached to the thorax. The Arachnida have no true antennæ, but have four pairs of legs attached to the thoracic part of the cephalo-thorax. The Myriapoda and Onychophora have one pair of antennæ and numerous pairs of legs. The Crustacea have two pairs of antennæ and usually five or more pairs of legs to the thoracic part of the cephalo-thorax, and often some abdominal legs. No other Arthropoda than the Insecta have wings, and even some Insects are destitute of them during their entire life.

With respect to the states or forms assumed in the course of their lives, Insects may be grouped into three divisions :

1. Insects which pass through four states, viz., (1) the *Egg*, (2) the *Larva* (caterpillar, maggot, grub, or "worm"†), (3) the *Pupa* (chrysalis), usually a quiescent state, and (4) the *Imago* (perfect insect).

* The characters given in this paper for the classes of Arthropoda are mainly those used in Claus and Sedgwick's excellent Text Book of Zoology.

† Such as the "Tomato-worm," "Grape-vine worm," and similar plant-feeders.

2. Insects which pass through three states, viz., (1) the *Egg*, (2) the *Nymph* and (3) the *Imago*.

3. Insects which pass through two states, viz., (1) the *Egg*, and (2) the *Larva-form*.

1. Insects passing through four such states differ very much when in their larval state from the form which they possess when in their imago state, and hence are said to undergo a *complete* metamorphosis or transformation. Such are Bees, Butterflies, Beetles, etc. Very frequently the pupa is enclosed in a *cocoon* of silk, earth, chips, or other substance.

2. In other insects there is no distinction between the larval and pupal states, and the larva much resembles the imago, although differing noticeably by the wings being not yet developed as organs of flight. Such insects pass through an *incomplete* transformation. Lately the word *Nymph* has been used to denote that state of existence in such insects between the egg and the imago, although formerly it was synonymous with *pupa*. Insects with an incomplete transformation are Grasshoppers, Dragflies, etc.

3. These insects undergo no transformatton, the larval form being retained to the end of their existence. Such are Fish-moths and Spring-tails.

The growth of an insect is completed in its larval or its nymph state, and however long an insect may live, it never increases in size after it has attained its perfect form. The modes of passing through the successive changes of form vary much in the different orders of insects, and are always full of interest to careful observers. These changes will be referred to in future articles on the various orders.

The principal characters which distinguish the Insecta from the other classes of Arthropoda may be tabulated as follows (These characters apply only to adult individuals):

Arthropoda.—Animals with a segmented body and jointed segmental appendages.

A.—Breathing by gills (Division *Branchiata.*)

Body usually divided into a cephalo-thorax and an abdomen; two pairs of antennæ . . . . . Class I, **Crustacea.**

B.—Breathing by tracheæ (Division *Tracheata.*)

1. No true antennæ (Subdivision *Chelicerota.*)

Body usually divided into a cephalo-thorax and an abdomen; four pairs of thoracic feet; no abdominal feet. Class II, **Arachnida.**

2. With one pair of antennæ (Subdivision *Antennata*).

a. Body not divided into regions; feet fairly numerous,
Class III, **Onychophora** (or **Prototracheata**).
Class IV, **Myriapoda.**

b. Body divided into head, thorax and abdomen; six feet, restricted to thorax.
Usually with two pairs of wings, Class V. **Insecta** (or **Hexapoda**).

P. P. C.

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Additional Notes on some North American Odonata.

BY PHILIP P. CALVERT.

On Jan. 28, 1890, were published the separate copies of my paper entitled, "Notes on some North American Odonata, with descriptions of three new species (Trans. Amer. Ent. Soc. xvii, pp. 33—40, 1 pl.)." During the next two days I sent copies of my paper to various students of the Odonata. One of the new species I described under the name of *Leucorhinia Hageni*, figuring the inferior appendage and hamule of the male, and the vulvar lamina of the female. Under date of Feb. 2, 1890, Dr. Hagen wrote to me acknowledging the receipt of my paper, and stated that "your *Hageni* is, I believe, *L. hudsonica* Selys." He also sent me drawings of the male hamule and female valvules of *hudsonica*. I can now see no reason for believing *Hageni* to be specifically distinct.

Since the publication of my paper, Mr. Charles W. Johnson has kindly looked over my Floridan types of *Lepthemis gravida*. He tells me that he has collected this species flying over the salt marshes near St. Augustine, Fla. In the habitat given originally (l. c. p. 36) for this species, I have misspelled Ponto Rasso for Punta Rassa.

Students of the Odonata must rejoice in the recent publication of two parts of Dr. Hagen's new "Synopsis of the Odonata of North America," published in "Psyche" vol. v, Nos. 160 and 166, and dealing with the genera *Calopteryx* and *Anax*. I have recently compared the specimens of *Calopteryx* in my collection and that of the American Entomological Society, with Dr. Hagen's paper on that genus. In both collections *Calopteryx* is but poorly represented, and but few new facts were ascertained from the comparison.

Five North American species are recognized in the paper referred to, viz.: *C. angustipennis*, *amata*, *dimidiata* (with race *apicalis*), *æquabilis* (with races *hudsonica* and *yakima*) and *maculata*. Of these I have seen *dimidiata* (and r. *apicalis*), *æquabilis* and *maculata*.

Dr. Hagen states ("Psyche," v, p. 242) that "The genus *Calopteryx* largely represented in the northern boreal and temperate zone nowhere passes to the south beyond the 30th degree." I possess a male *dimidiata*, formerly in the collection of Prof. P. R. Uhler, of Baltimore; when Prof. Uhler gave this specimen to me it bore (and still bears) the label "Calopteryx, Honduras." Honduras, including that part under British rule, extends from about the 18th to the 13th parallel of North latitude. The most southern locality in all America for any species of *Calopteryx*, as given by Dr. Hagen, is Florida.

In the Am. Ent. Soc. collection are two males of *apicalis* from Delaware, a new locality. In the same collection are two females, one certainly, the other probably from Delaware; I think that they also belong to *apicalis*. The measurements of these females are: Total length 40—40.5 mm.; abdomen, 31.5—32.5 mm.; anterior wing, 30 mm.; posterior, 29 mm.

Of *æquabilis* I possess one male and one female, both taken by Mr. Harry L. Walker at Belvidere, Boone County, Ill., June 29, 1888, "on the bank of a little stream." Both agree very well with Dr. Hagen's description, except that the wings of the female are hardly smoky at the apex.

For *maculata* I add a new locality, Tama County, Iowa; two males and one female taken June 21, 28, 29, 1889, by Miss Alda M. Sharp.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

IDENTIFICATION OF INSECTS (IMAGOS) FOR SUBSCRIBERS.—Specimens will be named under the following conditions:

1st.—The number of specimens to be limited to twelve (12) for each sending.

2d.—The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society.

3d.—Each specimen must have a number attached so that the identifications may be announced accordingly.

Such identifications as can be given will be published according to number, in the issues of the NEWS. Address packages to *Entomological News*, Acad. Nat. Sci., Logan Square, Philadelphia, Pa.

NOTES FROM COLORADO.—*Timothy bugs.* On Aug. 21, 1889, I took ♂ and ♀ Pentatomids on Timothy-grass (*Phleum pratense*) by Willow Creek, Custer County, Col. They are identified by Mr. Ashmead as *Homœmus bijugis* Uhler, which is probably a variety of *H. anciſrons* Say.

Yucca-insects. One day I examined the flowers of *Yucca angustifolia* at West Cliff for insects, having at the time just read some articles on the *Yucca* controversy. I found many Aphides, and some ants, possibly *Formica ciliata* Mayr, and on the outside of one of the flowers a bee, *Nomia nortoni* Cress. The Hymenoptera were kindly examined by Mr. Ashmead.

Cœnonympha eggs. On June 26, 1889, I caught a ♀ *Cœnonympha ochracea* near Texas Creek, Custer County. From its abdomen I obtained an egg by pressure; it was pale yellow, globular and large for the size of the insect. It proved infertile.—T. D. A. COCKERELL.

J. W. TUTT—Rayleigh Villa, Westcombe Park, London, E. England—is engaged on a Monograph of the varieties of NOCTUÆ occurring in Great Britain, with descriptions, etc., of the varieties of these species occurring in other countries, and would be pleased to hear from the readers of ENTOMOLOGICAL NEWS as to any striking forms of variation that may come under their notice.

THE GLANVILLE FRITLARY.—"This butterfly took its name from the ingenious Lady Glanville, whose memory liked to have suffered for her curiosity. Some relations that were disappointed by her will, attempted to set it aside by acts of lunacy; for they suggested that none but those who were deprived of their senses, would go in pursuit of butterflies. Her relations and legatees cited Sir Hans Sloane and Mr. Ray to support her character; the last gentleman went to Exeter, and on the trial satisfied the judge and jury of the lady's laudable inquiry into the wonderful works of the Creation; and established her will.—*Harris' Aurelian* 1766.

"I RECOLLECT some ten or twelve years ago, one Sunday, whilst collecting in a neglected field, near Bernard's dam, that the proprietor of the ground, or of some neighboring territory, a pleasant, hale old gentleman, came down in his shirt sleaves to gratify his curiosity in regard to my doings. He first approached with the proper caution due to nearing an equivocal animal, but assuring himself by the placidity of my countenance, doubtless, that there was no apparent danger to be dreaded, he approached

me, and in the Pennsylvania German dialect asked what I was doing. I showed him my collecting-box and its contents, my net, etc., and as at that moment a large female of the *Ephestion* butterfly flew near, I joined example to precept by capturing and killing and pinning it in my collecting-box in his presence. The most difficult part to make the old gentleman comprehend, was what the things could be used for after they were caught. I attempted an explanation. Whether I was successful in doing so to his satisfaction I still doubt, however, he seemed pleased, and by way of explanation said, as he departed, 'Ich haab dich gasayn for ein bar Suntaag here und durt so rum springe un ich hab gaydenkt du waarst so ein kaerl wo nicht gons recht in kopf war, aber.'* Here he paused and looked puzzled, and I fear to this day the worthy old husbandman (bless his kindly face) is still, if living, in a state of suspense as regards my being responsible for my actions before the Lord and my fellow-man."

The Expedition sent out by the Academy has been heard from several times; they are doing good work, and are all well. The last report says, "We have just arrived at Vera Cruz after a very enjoyable and interesting time in Yucatan. Expect to go straight to Orizaba. This morning, early, we saw the snow-clad peak of Orizaba in the distance."

While watching a luna moth just after it emerged from the cocoon. I noticed that the small and unexpanded wings were light yellow in color, and I thought it would be abnormal in coloration, but at the base of the wing I saw a small area, which was of a beautiful light green, and as the moth gradually expanded the wings this was distributed through them, making the color normal. This is another proof of the fact that the wings are expanded by the moth pumping a fluid into them when they are soft and elastic.—H. Skinner.

The fine collection of insects made by the late Stephen Calverley has been presented to the Brooklyn Institute by his son.

Plans for Exterminating Mosquitoes.—Mrs. Eugene M. Aaron, of 1832 Pine Street, has been awarded the first prize offered by Dr. Robert H. Lamborn, of New York City, for the best essay on the extermination of mosquitoes, especially by Dragon-flies. The second and third prizes have ceen divided equally between Mr. Archibald C. Weeks, 120 Broadway, New York, and Mr. William Beutenmüller, 132 East Seventy-sixth Street, New York. It is understood that Dr. Lamborn will publish the essays. The judges who made the awards were the Rev. Dr. Henry C. McCook, of the Academy of Natural Sciences of Philadelphia, and Prof. J. S. Newberry, of the School of Mines, Columbia College, New York.

Mr. J. D. Evans, in the "Ottawa Naturalist," vol. iii, No. 4, reports *Erebia epipsodea* as being found at Sudbury on the Canadian Pacific Railroad.

* 'I have seen you running around here for the last couple of Sundays, and I thought you were one of those fellows who were not quite right in the upper story, but'——

Entomological Literature.

Die Zweiflugler des Kaiserlichen Museums zu Wien, IV.—Vorarbeiten zu einer Monographie des Muscaria Schizometopa (exclusive Anthomyidæ) Pars I. Von Prof. Dr. Friedrich Brauer, W. M. K. Akad., und J. Edl. v. Bergenstamm (Mit 11 Tafeln). Denkschr. d. math.-wissens. Classe d. k. Akad. d. Wissensch. Bd. lvi, pp. 1—112, pls. i—xi, 4to. 1889. —Only he who has endeavored to find his way in the devious labyrinth of the calyptrate Muscidæ can appreciate this important and valuable paper, the most important that has ever appeared on the subject, and one that will mark a new epoch in our knowledge of the group. To give even an outline of its contents is impracticable here, nor would I feel at all competent for the task, were my opportunities unlimited. A paper that introduces fifty new families and one hundred and fifty new genera would appall any ordinary critic, and I know only enough about the insects to appreciate the labor and research the paper has cost. The authors, following out Prof. Brauer's previously published taxonomic views, present an almost entirely new classification of the group, which is coextensive with what has been generally known as the Muscidæ calyptratæ, with the inclusion of the Oestridæ. "Families," groups and genera are defined, and three hundred and ten admirable lithograph figures, graphically illustrate most of the genera. All the known genera are not included; only those of which the authors had definite or artoptic knowledge; still, there cannot be many wanting, and the work must remain as the *sine qua non* of all dipterologists who have anything to do with these flies. The work is nothing if not iconoclastic, and I do not think will, and ought not to, obtain the concurrence of entomologists in all respects. The authors' conception of the genus is, I think, not tenable, and there is a great lack of uniformity in the group names. But, whatever the differences may be, all will unite in their appreciation of the great value of this *bahnbrechend work*.—S. W. Williston.

Proceedings Academy Natural Sciences Philadelphia, Part III, 1889.—Antennæ of Coleoptera, by Geo. H. Horn, M. D. On a new species of Spider of the genus Dinopis from the Southern United States by Geo. Marx, M. D.

A Season's Work Among the Enemies of the Horticulturist, by Clarence M. Weed. The enemies referred to in this paper are of two kinds: insects and fungi. The insects treated of are the Rhubarb Snout Beetle, Imported Currant Worm, Plum Curculio, Striped Cucumber Beetle, Cherry Tree Slug and Strawberry Root Louse. The appropriate remedies are given to destroy each of these pests.

The Entomologist, London, March, 1890.—The Evolution of Insect-galls by T. D. A. Cockerell. Notes on the Economy of *Retinia resinella*, R. Adkin. *Rhopalocera* at Digne, Mrs. Nicholl. One the Phylogenetic

significance of the wing-markings in certain genenera of the Nymphalidæ, F. A. Dixey. New species of Lepidoptera from China, J. H. Leech. Descriptions of new species of Phytophagous Coleoptera received by Mr. J. H. Leech from Chang-Yang, China, Martin Jacoby. Descriptions of the Homopterous family Cicadidæ, W. L. Distant. Notes on *Hybocampa milhauseri*, T. A. Chapman. Faroe Islands, Rev. Dr. Walker. Entomological Notes, Captures, etc., and doings of societies, etc., complete the number.

Annals and Magazine of Natural History, vol. v, No. 27, London. —Descriptions of new species of Lepidoptera (Heterocera) from Central America, Herbert Druce. The new species mentioned in the above paper are figured in the Biologia Centrali-Americana. Descriptions of two new Central American Buprestidæ, C. O. Waterhouse. Description of a new *Papilio* from the West coast of Africa, H. Grose Smith (*Papilion harpagon*). On the constitution of the body in the Blattidæ, E. Haase. Description of a new genus of the Homopterous family Cicadidæ, W. L. Distant.

Biologia Centrali-Americana, Part LXXXI, December, 1889.—(Received March, 1890). Contains Arachnid Araneidea, O. Pickard Cambridge, pp. 49—56, pl. 5, thirteen colored figures. Coleoptera, vol. ii, pt. 2. H. W. Bates, pp. 385—416, pl. 24, twenty-five colored figures. Coleoptera vol. iii, pt. 1, C. O. Waterhouse, pp. 169—193. Coleoptera vol. iv, pt. 2, G. C. Champion, pp. 103—120, pl. 5, twenty-five colored figures. Lepidoptera, Heterocera, H. Druce, pp. 337—344, plate 5, twenty-fiva colored figures. Rhynchota Heteroptera W. L. Distant, pp. 321—328, pl. 30, twenty-five colored figures. Quite a number of new species are described and handsomely illustrated.

Biologia Centrali-Americana Part LXXXII, January, 1890 (Rec'd March, 1890).—Coleoptera vol. ii, part 2, H. W. Bates, pp. 417—432. Colegptera vol. iv, part 2, G. C. Champion, pp. 121—160, plates 6 and 7, fifty-one colored figures. Lepidoptera Heterocera vol. i, H. Druce, pp. 345—368, plate 31, fifteen colored figures. Diptera vol. ii, F. M. van der Wulp, pp. 41—56.

The Entomologist's Monthly Magazine (London) March, 1890.—Synopsis of the British Orthoptera (continued), Eland Shaw. Coleoptera in Norfolk, James Edwards. Descriptions of some new species of South American Halticidæ of the group Œdipodes (continued), Martin Jacoby. Descriptions of four new species of the genus *Castnia* from South America, Herbert Druce. Notes on British *Tortrices* (continued), C. G. Barrett. Notes on the Coleoptera and Lepidoptera (*Rhopaloc.*) of Norway, G. C. Champion (with list of Norwegian butterflies by W. M. Schöpen). Notes on British and Exotic Coccidæ. J. W. Douglas. Hemiptera Heteroptera at Dover and its vicinity, G. C. Hall. *Stenamma*

Westwoodii at Maidstone, G. E. Frisby. *Cis cis bilamellatus* breeding in captivity, Rev. Theodore Wood. *Harpalus obscurus* H. R. Tottenham. Casual captures of COLEOPTERA, J. J. Walker. COLEOPERA in the North of Ireland, Rev. W. F. Johnson. *Oberea oculata*, Rev. C. Fowler. *Mycterus curculionides* from near Oxford, Id. On the larva of *Gtæa spadicea* and *G. vaccinii*, T. A. Chapman, M. D. A point concerning hybridization, H. W. Vivian. Some MICRO-LEPIDOPTERA of the Chalk Hills near Reading, W. Holland. *Aciptilia paludum* in the New Forest, Id. *Mecyna polygonalis* Tr. in New Zealand, E. Meyrick. *Nepticula pyri*, a species new to Britain, J. H. Wood. *Scoparia basistrigalis* as distinct from *S. ambigualis* G. T. Porritt. Identity of *Dianthœcia carpophaga* and *D. capsophila*, W. F. H. Blandford. *Drepanopteryx phalænoides* in Durham, Amos Mitchell.

Doings of Societies.

ENTOMOLOGICAL SECTION ACADEMY NATURAL SCIENCES OF PHILADELPHIA, March 27, 1890.—Members present: Messrs. Martindale, Ridings, Skinner, Liebeck, Seeber, Castle, Calvert, Westcott, Mr. Mengel and Mr. Fox, visitors. Dr. Geo. H. Horn, Director, in the chair. Verbal communications being in order, Dr. Horn called attention to a box containing *Cercyon* and allied genera, with all the known species represented. He exhibited plates showing anatomical characteristics of *Cercyon*. The shape of the meso-sternum was considered in relation to classification. A lighter colored region of the meta-sternum is defined or not according to circumstances. The genus *Cryptopleurum* has a well defined line or extension of the meta-sternum, which has value as a basis of comparison. In *Cercyon* the pro-sternum is a carina, and in some genera a broad plate. Points in the comparative anatomy of the genera were considered at length. He further stated that the proper way to study genera is by a comparison of the gradations of anatomical features. Mr. Calvert spoke of the list of dragon-flies collected at Manchester, Me., by Miss Wadsworth, forty-three species being enumerated, which is a very creditable showing. The number of species observed in comparison to other places is large, as in Great Britain only forty-six species are enumerated according to McLachlan. Mr. Calvert estimated the species of this locality (Philadelphia) as fifty. *Epitheca Walshii* is the rarest species in the Maine list, only four ♂ and one ♀ specimens being known. Dr. Hagen has lately published a synopsis of the dragon-flies of North America, to which Mr. Calvert called attention. The following specimens were donated to the cabinet: *Rhodites fusiformans* Ckl., four specimens; *Syntomaspis monticola* Ashm., one specimen. Galls of *Trypeta bigelovia* Ckl. Galls of

Rhodites rosæfoliæ, Ckl. (the flies have since emerged), all from Mr. Cockerell, West Cliff, Colorado. *Pimpla grapholithæ* Cress., presented by Dr. John Hamilton.

ENTOMOLOGICAL SOCIETY OF WASHINGTON.—March 6, 1890. Mr. Schwarz exhibited and remarked upon the following species of Coleoptera, which are new to the fauna of North America: *Lathridius (Coninomus) nodifer* Westwood; *Actinopteryx fucicola* Allibert; *Arrhipis Laneri* Guerin and *Probatius umbratilis* Duval. He also showed specimens of *Temnochila Hubbardi* Léveilleé, and *Teretriosoma Hornii* Lewis, recently described in European journals from the semi-tropical region of Florida. He finally drew attention to Dr. Horn's recent Revision of the North American species of *Ochthebius*, and spoke of the geographical distribution of these aquatic beetles. Discussion followed by various members.

The Secretary presented a note on a Dipterous larva infesting the seeds of Xanthium. He had found that these larvæ at Manhattan, Kansas and during the past winter in the District. Drawings were exhibited illustrating the larva and the nature of its work.

The Secretary also presented a short note on the food-habits of *Psiloptera drummondi*.

These notes were discussed by Schwarz, Townsend and Howard.

Mr. Townsend read a paper entitled, "Notes on Acridiidæ in Michigan," which related more particularly to dates of appearance and habits.

C. L. MARLATT,

Recording Secretary.

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ERRATA.

Page 56, line 10 from top, for exista *read* exusta.
" 58, " 6 from bottom, for Sagmache, *read* Sagnache.
" 60, " 5 from top, for Amstat, *read* Austat.
" 61, " 15 from top, for *Dyctidæ* read *Dyctidea*.
" 61, " 18 from top, for *Tilicen* read *Tibicen*.
" 64, " 6 from top, for *fusciformans* read *fusiformans*.
" 64, " 8 from top, for *Cemthophilus* read *Centhophilus*.

ENTOMOLOGICAL NEWS for April was mailed March 25, 1890.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

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WINTER COLLECTING IN FLORIDA.

BY ANNIE TRUMBULL SLOSSON.

I reached Florida this year on January 25th. Butterflies were flying at that season in Jacksonville, and I saw from my window *Callidryas eubule*, *Terias delia*, *Limenitis disippus*, *Danais archippus*, and some of the Hesperidæ. At night, though the weather was cool, *Agrotis incivis* and *A. malefida* came to the piazza lights by the dozen. On the 27th, at Sanford, about one hundred and twenty-five miles farther south, several moths came to the rather dimly-lighted windows, among them the Southern form of *Hyperchiria io*, Dr. Strecker's *lilith—Eudioptis hyalinata* and *Agrotis incivis*. On the 28th we went to Punta Gorda (Charlotte Harbor) and remained there until March. There had been no rain there for some four or five months, consequently vegetation was backward, and there were very few flowers, but insects were plentiful. During the first few days after my arrival I saw *P. cresphontes*, *P. palamedes*, *P. ajax*, *P. troilus*, *P. turnus*, *D. archippus*, *L. disippus*, *L. cros*, *Pieris monuste*, *Agraulis vanillæ*, *Terias delia*, *T. lisa*, *Callidryas eubule* and *Junonia cœnia*, besides numerous Hesperidæ. A few days later, about

the few orange blossoms which opened in spite of the drought, we found beautiful specimens of *Eryeides batabano*. They fluttered about the fragrant flowers like humming birds, their wings glancing in the sunlight with touches of sapphire and emerald. With them, and sipping from the same blossoms, we took three specimens of an *Alypia* new to me, and which I cannot place till I have access to my books. Along the shore, just inside the thicket of mangroves, are long flat stretches of sand, often submerged and always wet. On these grow little but samphire (*Salicornia ambigua*) *Iresine vermicularis* and such marine plants with fleshy, succulent leaves and insignificant flowers. But over these in the hot sunshine at midday were always flitting tiny *Lycænas* and *Theclas*. Here I took the little bronzy *L. isophthalma*, *L. filenus*, *L. theonus* (a lovely little species, the female with wings almost white), *Thecla pœas*, *T. M-album* and *T. melinus* (this last name is given me by Dr. Henry Skinner). There were so very few blossoms that I knew nearly every plant which bloomed, and could visit each one as I made my collecting rounds. One large thistle (*C. horridulum*) with several heads of pale yellow flowers was always a favorite spot for insects, and wherever a plant of the ugly fireweed (*Erechthites*) lifted its greenish, commonplace heads of flowers they were surrounded by little gay-winged lovers. Seeing at a distance one day what looked like a patch of large white blossoms I went towards it only to find a mat of the little creeping hyssop (*Herpestis monniera*) with tiny lavender flowers covered with the Southern cabbage butterfly (*P. monuste*). There were at least twenty on a patch not two feet square. Hesperidæ abounded, skipping jerkily about the grounds of the hotel and over the palmetto scrub; *Pamphila brettus*, *P. fusca*, *P. phylæus* (Dr. Skinner gives me these names), *P. arpa*, *P. maculata* and several others yet unnamed. *Calephelis cænius* was also abundant. The evenings were generally windy and cool, not favorable conditions for moth hunting, but we met with comparative success. At light we captured many fine specimens, some still unidentified. Here we took *Hyparpax auricinctus* (I think that this is the name given last year by Mr. Graef, but I have no book for reference), *Varina ornata* Neumoegen, *Litoprosopus futilis* G. & R., *Byssodes obrussata* Gr., *Lepiodes scolopacinaria* Guen., *Dilophonota obscura* Fab., *Ellema coniferarum* A. & S., *Lagoa pyxidifera* A. & S., *Platœcticus gloveri* Pack.,

Trama hinna Gey., *Phurys vinculum* Guen., *Euhalisidota longa* Gr. and many other species. The true collector is always sanguine, and I have great hopes concerning my unnamed specimens. One large, oddly-marked sphinx fills me with visions of a new genus as well as species, and I have already selected its name. There is also a strange and beautiful moth, apparently one of the Zygænidæ, unlike anything I have seen or of which I have read. I found feeding upon the tomato vines in the hotel garden many larvæ of *Phlegethontius celeus*, and upon the sweet potato and *Ipomœa pes-capræ*, larvæ of *P. cingulata*. These were all full grown; I placed several of them with their food-plant in a box of earth where they soon buried themselves and transformed, but though they have been in the pupa state nearly five weeks no moth has yet emerged. I also found feeding upon mangrove (*Rhizophora mangle*) and upon *Conocarpus erecta* young larvæ of *Hyperchiria io* Fab. I have reared them and they are just spinning themselves up among some leaves. They do not differ in any respect, as far as I can see, from the typical form, and I am anxious to see if they will develop into var. *lilith* Strecker.

(To be continued.)

Aculeate Hymenoptera new to Pennsylvania and New Jersey.

BY WILLIAM J. FOX.

The following list of Aculeate Hymenoptera may prove of interest to some readers of the NEWS, as it adds a few more species to the fauna of Pennsylvania and New Jersey. The majority of them were collected at Westville, N. J., several miles below Philadelphia, during 1889. The localities in parentheses signify where the species was recorded from before publication of this article.

Mutilla ornativentris Cress. Several specimens, Westville, N. J., 1889 (Southern and Western States).

Mutilla dubitata Sm. Several specimens taken with the preceding species (Florida, Georgia, Colorado).

Mutilla thoracica Blake. One specimen of this small species was captured Oct. 29, 1889 (New York).

Sphærophthalma cypris Blake. This species was moderately common at Westville during the summer of 1889 (Georgia).

Sphærophthalma canadensis Blake. About a dozen specimens were taken in the same locality (Canada).

Tachytes mandibularis Patton. Taken at Westville, N. J., 1889. One specimen (Connecticut).

Philanthus Sanborni Cress. Westville, N. J., August, 1889. One female (Massachusetts).

Crabro trapezoideus Pack. One male, Fairmount Park, Philadelphia, September, 1889 (Illinois).

Thyreopus cingulatus Pack. Westville, N. J., Oct. 29, 1889. One female (Illinois).

Anacrabro occellatus Pack. Three specimens, one male and two females, Westville, N. J., July and August, 1889 (Mass., Ill.).

Vespa occidentalis Cress. One specimen, Fairmount Park, Philadelphia, September, 1889. Flying in company with *V. germanica*, *vidua* and *diabolica* (Nevada, New Mexico).

Nomada texana Cress. Two specimens, both females, Camden, N. J., 1889 (Texas).

Nomada lepida Cress. Three specimens (males), Franklinville, Pa., April 20, 1890. Flying over and alighting on dry sunny paths in the woods (Illinois, Colorado, Texas).

Mellissodes compta Cress. One female of this handsome species taken in Fairmount Park, Philadelphia, Sept., 1889 (Ga.).

Apathus variabilis Cress. Gloucester, N. J., August?, 1889. One specimen (Texas).

All these species were compared with those in the collection of the American Entomological Society, which contains the *types* of nearly all the insects mentioned.

———o———

GEOGRAPHICAL VARIATION.

BY HENRY SKINNER, M. D.

Dr. John Hamilton, in a recent paper (Trans. Am. Ent. Soc. vol. xvi, p. 88), gives a list of the Coleoptera common to North America, Northern Asia and Europe, and Mr. Cockerell (Entomologist's Record and Journal of Variation vol. i, No. 1, p. 9) a list of the "American Species of Lepidoptera Representative of European;" also on page 13 of same work, "American Varieties

of British Species (Lepidoptera)." These papers are very interesting and instructive, and suggest many other lines of investigation of a similar character. When the Lepidoptera have been more exhaustively studied after the plan adopted by Dr. Hamilton in the Coleoptera, I have no doubt the results will be interesting, and a number of species now considered distinct more on account of difference of locality than anything else, will be amalgamated.

It has been noted that the Pacific coast fauna more nearly approaches that of Europe than the Eastern, but I do not know that in a species common to both countries a greater similarity has been noticed between the Western specimens and those of Europe than the Eastern. Last Summer I had sent to me a number of chrysalids of *Vanessa antiopa* from San Jose, Cal., and when they disclosed the perfect insects I found them all to be intergrades between the specimens found here (Philadelphia) and those of England and Germany. I had previously noticed that the European *antiopa* could always be distinguished from the American example by the less irrorate character, and usually lighter color of the yellow border of the wings, the former of which is generally most markedly illustrated on the little tail to the inferior wings and the similar projection on the superiors. The European specimens are also usually smaller. The Californian examples are intermediate between the Eastern and European as far as the dark peppering on the border is concerned, and could be readily picked out from the others. I leave it to some one else to point out the significance of the observation. Among the chrysalids there was one, three or four shades lighter in color than the rest, and perhaps also a little larger, which disclosed the rare and interesting variety *hygiæa* Hdrch. (Verz. Eur. Schmett. p. 7, 1851), of which *lintnerii* Fitch (3d Rep. Trans. N. Y. State Agr. Soc. p. 485, 1856) is a synonym. It will be interesting to know whether a very much lighter colored chrysalis is an indication of a coming *hygiæa*. In Mr. Cockerell's list of "American Species Representative of European" he omits *Vanessa Californica* and *V. polychloros*, which are probably one and the same thing. It would be interesting to know whether *Californica* produces anything analogous or the same as the varieties of *polychloros*, *testudo* and *pyromelas* given in Kirby. I do not know of any described variety of the American species. *Grapta faunus* and *G. C-album* are undoubtedly identical, as has been pointed out by Strecker.

To the list of American varieties of British species may be added *P. rapæ*, var. *immaculata* (Can. Ent. July, 1889, p. 128); this makes five in all. I hope that some one will give a list with the bibliography, of the Lepidoptera common to Europe and America, and when a new list of the North American Lepidoptera is prepared the whole geographical range of the species (when found outside of America) will be given.

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ELEMENTARY ENTOMOLOGY.

Second Paper—The General Structure of Insects.

In those papers of this series which treat of the anatomy of Insects in general, we have largely drawn, with the author's permission, from Prof. J. H. Comstock's excellent "Introduction to Entomology."*

Thanks to the kindness of Prof. A. S. Packard, we have also made use of his well-known "Guide"† and his valuable "Entomology for Beginners."‡

As stated in the first paper the body of an Arthropod, and consequently that of an Insect, is made up of a series of rings or *segments*, within which are the vital apparatus and muscles. Confining our attention to insects, it is to be noticed that even young larvæ§ just hatched from the egg show this segmentation of the

* An Introduction to Entomology by John Henry Comstock, Professor of Entomology and General Invertebrate Zöology in Cornell University, and formerly United States Entomologist. With many original illustrations drawn and engraved by Anna Botsford Comstock. Ithaca, N. Y. Published by the author 1888, pp. iv, 234, 201 figures. Price $2.00.

† Guide to the study of Insects and a treatise on those injurious and beneficial to crops for the use of Colleges, Farm-schools and Agriculturists by Alpheus S. Packard, M.D., with fifteen plates and 670 woodcuts; ninth edition. New York, Henry Holt & Co., 1889, 715 pp. (first edition, 1869, Salem)

‡ Entomology for Beginners. For the use of Young Folks, Fruit-growers, Farmers and Gardeners, by A. S. Packard, M.D., Ph. D.; second edition, revised. New York, Henry Holt & Co., 1889, 367 pp. 272 figs.

§ It is hardly necessary to remind the reader that an Insect is an Insect, whether it is an unhatched egg, a growing larva, an apparently lifeless pupa, or a flying or creeping imago. Imagos being so much more conspicuous than the preceding stages, have naturally received both common and scientific names first.

body. If such a young larva be examined* the jointed appearance of the exterior will be seen. The skin of this young larva is quite soft, but becomes harder as the larva grows. This hardening is due to the deposition in the outer layer of the skin (called the *cuticle*) of a horny substance—*chitine*. The chitine is deposited in the cuticle of the different segments, but there is left a narrow space around the body between each segment, in which there is little or no chitine. These narrow rings of unaffected skin divide the segments from each other, and are termed *sutures*. Remaining soft, the sutures permit a freedom of motion of the hard segments upon each other.

In larvæ the sutures are usually wider than in the corresponding imagos. Very often the sutures themselves become hardened by chitine, so that the line of separation between two segments disappears. Such an obliteration of sutures occurs very frequently in the head and fore-parts of imagos, and less frequently in the hind parts.

We have spoken of the segments as hard, but the hard part of any one segment is not a continuous ring. On the contrary, the hard part of a segment consists of several pieces which are more or less free to move upon each other. These pieces are the *sclerites* (from the Greek *skleros*, hard). Some of the soft cuticle remains between the sclerites, and this separating portion also receives the name of *suture*, and like an inter-segmental suture may also become "obsolete" (*i. e.* obliterated).

The skin, originally soft, but now with its cuticle hardened in the segments, the hard part of each segment consisting of several sclerites, forms the *body-wall* of the Insect.

The reader of this series already knows that all an insect's growth is completed in its larval state. As a larva grows quite rapidly, and as chitine is being constantly deposited in the cuticle, the cuticle thus hardened loses its elasticity and is soon too small for the increasing size of the body. Consequently it splits along the middle line of the back, and through this fissure the insect withdraws itself from its chitinous coat. Or, in other cases, the cuticle comes off gradually in thin shreds. The "new skin" contains very little chitine as yet, and being quite elastic, stretches to accommodate the size of the body. This skin (cuticle) in turn

* The student cannot be too strongly reminded that he should compare these papers with some insect, say a grasshopper.

becomes hardened, is likewise cast off, or *moulted*, and succeeded by others, varying in number in different species of insects. Very often there are changes in the shape, color, etc., of the larva after successive moults.

Technical names for the process of moulting are *ecdysis* and *exuviation*, and for the moulted skins, *exuviæ*.

In the case of those insects passing through a complete transformation, when the larva moults for the last time, it becomes a pupa, usually of quite dissimilar shape from the larva, and usually quiet, that is, does not move from place to place. The last moult of the insect's life is when the cuticle of the pupa splits open and the imago emerges, and, after a short period, spreads its wings and begins its ærial life.

Where the insect undergoes but an incomplete transformation, when the nymph moults for the last time, the imago state is entered at once.

Hitherto, in speaking of the segmented form of an insect's body, reference has been made solely to the body-wall. So far as the internal organs are concerned, the muscles, the nervous, circulatory and respiratory systems, at least, are more or less arranged in correspondence with the segmentation of the body-wall. P. P. C.

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"SPORTS" IN VENATION.

BY A. B. CORDLEY.

Some time ago while studying the Hymenoptera collected during the seasons of 1888 and 1889, I found three specimens which puzzled me very much. They apparently belonged to the genus *Nomada*, but differed from all the specimens of that genus in our collection in that the anterior wings had but two submarginal cells. I sent one of the specimens for determination to Mr. E. T. Cresson, who replied as follows: "The bee you sent is one of the varieties of *Nomada maculata* Cress., a very variable species. I have seen specimens in which the first transverse cubital nervure was obliterated in one anterior wing, but not in both as in the specimen you sent. Are these nervures absent in both wings in the specimens you have? If so it is both curious and interesting. Such 'sports' occur frequently among the Saw-flies, but rarely among bees." On referring to the specimens retained

I found that the nervure in question was totally obliterated in both anterior wings of both specimens. I also found that both specimens did not belong to the same species, one of them proving to be *Nomada imbricata*. Of the other thirteen specimens of *maculata*, and seven specimens of *imbricata*, taken during the same time, all have the three submarginal cells complete, there being no apparent tendency of the first transverse cubital nervure to become obliterated. I have, also, one specimen of *Colletes* Sp. and one of *Andrena* Sp., which have three submarginal cells to one anterior wing, but only two to the other.

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ON THE HABITS OF SOME MELOINI.

BY H. F. WICKHAM.

Some of our large Western Meloini make striking additions to any cabinet by their bright colors and curious forms. Of these the most beautiful is, in my estimation, *Cysteodemus wislizeni:* This species, with its small head and thorax and immensely inflated elytra which give the hinder part of the body a globular outline, is rather a clumsy object, though its bright blue color more than compensates for any inelegance of form. One who had seen only dead specimens would naturally suppose that it was slow in movement when in fact the exact reverse is the case.

In 1888 I spent a few days at Luna, N. Mex., a nominal station twenty-two miles west of Albuquerque. Near the switch the grass was growing very luxuriantly, and here I had the good fortune to find a colony of this pretty beetle. We arrived in the early morning, and just as I was getting up from the breakfast table in our car, one of the men who had gone out a few minutes before me stuck his head in the door and deposited a "bug" on the floor, which he said he had found running around just outside the car. He looked on it with suspicion, for it had exuded a quantity of yellowish liquid which stuck to our friend's fingers and smelled something like an infusion of all the different vegetables one can think of. I didn't let this prevent me from picking up the "bug," which proved to be the *Cysteodemus* mentioned above, and after a few moments spent in admiration of the brilliant colors, started out to find some more.

I was not yet familiar with its habits, and got only two or three in the few minutes I had to spare before leaving for the scene of

our work through the day, but on coming back about six o'clock P. M., I saw a few more running around. They hold the body high up from the ground and get over the ground at a good rate, looking as if they ran on tiptoe, if we may use such an expression in speaking of insects. I gathered these into the fold, and, as soon as supper was over, a search in the grass disclosed a number of them hanging to the blades a little distance from the ground, apparently feeding, and others taking their evening exercise. Before I left the place I had an opportunity to spend an entire day collecting, and I found that they were all hidden during the middle of the day, but came out to feed or run around in the morning and evening, staying out in the morning until about nine o'clock and coming out again about five o'clock P. M. I never saw this species at any other place, though I looked for it carefully in many different localities. The captures were made early in August.

Another ugly species, from an æsthetic point of view, is *Megetra vittata*, a near ally of our *Cysteodemus*, but with shorter and less inflated wing covers, which do not cover the abdomen. Dried specimens do not give a good idea of the clumsy unwieldliness of the living females of this species, which are so distended with eggs and food, that it seems almost impossible for them to move. They do move, however, though they have not the speed of the preceding species, the abdomen dragging on the ground. The males are more active, and in running lift the body high up like the *Cysteodemus*. The first specimen I saw of *Megetra* was a male, which ran across the platform at Coolidge, N. Mex., July 4, 1888. Next year I looked carefully for the species for nearly a whole day without success, when about four o'clock P. M. I noticed some dark objects in a "greasewood" bush; I went over to investigate, and found a number of these insects feeding on the leaves and others just climbing up the stems. When I counted up the catch I found that I had over forty specimens of both sexes. This was about the 12th of September, and this month is probably their pairing-time, as I took only isolated specimens at other times.

Melæ sublævis is found at the same time, and in company with the two species mentioned, but seems to be rarer, as I found only about a dozen in all. *M. impressus* I took in May at Cheyenne, Wyo., feeding on low plants in the early part of the day. *M. americanus* occurred at Bismarck, Dak., in August, feeding in the middle of the day.

COLLECTING BY LAMPLIGHT.

BY A. S. VAN WINKLE.

(Continued from p. 69, vol. i.)

In order to show the curious connection between the state of the weather and the degree in which moths were attracted to light I will now append the following table, which may prove of great interest to young entomologists, with a view that they may prepare tables in like manner:

Date.	No. Moths.	REMARKS.
Dec. 13	1	Fine starlight.
14	75	Drizzling and foggy.
15	41	Showers, cloudy.
16	158	(120 species) Steady rain.
17	82	Wet, rather moonlight.
18	9	Fine moonlight.
19	2	Fine, clear.
31	200	(130 species) Dark, windy and heavy rain.
Jan. 1	185	Very wet.
2	68	Cloudy and showers.
3	50	Cloudy and showers.
4	12	Fine.
5	10	Fine.
6	8	Very fine.
7	8	Very fine.
8	10	Fine.
9	36	Showery.
10	30	Showery.
11	260	Heavy rain all night and very dark.
12	56	Showery.
13	44	Showery, some moonlight.
14	4	Fine, moonlight.
15	24	Rain.
16	6	Showers.
17	6	Showers.
18	1	Showers.
	Total, 1386	

"Thus it appears that on twenty-six nights I collected 1386 moths, but that more than 800 of them were collected on four very wet and dark nights. My success here led me to hope that, by similar arrangements, I might, in every island, be able to obtain abundance of these insects, but strange to say, during the six succeeding years I was never once able to make any collections at all approaching those at Sarawak."

On reading the above I wished that we had a great many more Wallaces than we do have, *i.e.* if the entomologists of our own country would follow in the footsteps of this great English entomologist the progress of entomology would be much greater. A great many entomologists at present prepare large lists of insects, but probably one in a hundred cites the locality in which the insects are found; a great many on the other hand say North America, which means anywhere between the Atlantic and Pacific coasts, or from the Northern border of Central America to the confines of eternal snow, or just give the separate States. This is a fine state of affairs, is it not? This is also especially exasperating to the student of geographical distribution of insects. The exact locality I think is as of much importance as it is to know what species of plant or plants this or that species of insect feeds on. I hope that hereafter entomologists will pay more attention to the citation of localities. We know what care botanists take when out collecting, they jot down notes of each and every species of plant that they find, of their habits, situation and locality right on the spot. For a very interesting and instructive paper on this subject I would refer the reader to the March number of the "Canadian Entomologist," page 46, where Mr. Cockerell expresses his views.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

Dr. S. W. WILLISTON, of Yale University, New Haven, Conn., the Dipterologist, has accepted a professorship in the University of Kansas, at Lawrence.

INSECTS NAMED.—1. *Penthe obliquata;* 2. *Melanotus communis;* 3. *Holotrophus bifasciatus;* 4. *Aphorista vittata;* 5. *Aphodius fimetarius;* 6. *Eros aurora.* W. M. HILL, Chester, Pa.

Very costly Insects.—Dr. L. B. Clifton, the well known naturalist, has succeeded in hatching out a rare species of moth, known to entomologists as *Attacus luna*. For a specimen of this moth Dr. Clifton was paid $100 two years ago by the Earl of Roseberry, who is quite an enthusiast in that line. The present specimen is valued at $50.—From the *N. Y. Telegram*.—(More newspaper entomology.)

Polybia cubensis in Florida.—Among some Florida Hymenoptera received from Mrs. A. T. Slosson, of New York, were three specimens, with the nest, of a species of *Polybia*, which, on determination, proved to be *P. cubensis* Sauss. As there is no doubt as to this species being an inhabitant of Florida, I see no reason why it should not be added to the fauna of the United States. Mr. Charles W. Johnson, of the Wagner Institute, Philadelphia, has informed me that he has also taken this species in Florida.—Wm. J. Fox.

That observant naturalist, Cons. E. L. Layard, writing from New Caledonia, bears witness to the fact of rotten fruit being a very strong attraction to Lepidoptera. He writes: "At this moment I have in my verandah a parrot, which is daily regaled with a portion of banana. Every evening I see a dozen or more of the large Sphingidæ and Noctuæ trying to effect an entrance into the cage to get at the rotting fruit, which is generally invisible from the outside. . . . I always found bananas the best bait to attract the night flyers, but only when they began to rot (*Rhopalocera Malayana*)."—Try it.

Of the habits of the typical form of *Charaxes athamas* in N. W. India we have a few particulars from Capt. Lang. It is "an insect of extremely rapid flight, flashing like lightning up and down the rocky-bedded streams in the Himalayan glens (3000 to 5000 feet). It pitches on rocks in midstream and flashes off again if approached." Some Lepchas, who, in Sikkim, make what they can by catching insects, and selling them to visitors, take advantage of the known partiality of butterflies for wet sand. Mr. De Nicéville states that "in one place upon a large flattish stone near the middle of the stream the men had put some sand and kept it watered, and it was surprising the number of butterflies that came to their 'trap' and were caught (*Rhopalocera Malayana*)."

While visiting at Sarver Station, Butler County, Pa., last July, I took quite a number of *Colias philodice*, *Ab. alba*, and among them was a fine, perfect male; this is the first white male that has ever been taken to my knowledge, so this note to the News may prove of some interest to its readers. It is pure white on the upper surface, with a faint yellowish tint on the primaries; the black border, including both pairs of wings, is sprinkled with white scales; underneath it has a smoky appearance, and the submarginal row of orange spots is wanting, both on the primaries and secondaries.*—Geo. A. Ehrman, Pittsburg, Pa.

* If the genitalia were examined this would probably be found to be a female.

DOLERUS ARVENSIS Say and DOLERUS UNICOLOR Beauv.—These flies have been plentiful in this vicinity for the past ten days or more, and are usually found resting upon dead weeds of all sorts. They have been especially abundant among the branches and in the vicinity of a low spreading bur-oak tree, the buds of which are fairly dripping with a very sweet liquid that has oozed from them as the result of the myriad punctures inflicted by a minute gall-fly, *Neurolerus vernus* Gill. I visited this tree on the 26th of April in company with a student, Mr. H. H. Raymond, who called my attention to the mating of the black saw-fly with *D. arvensis*. A few moments later we both saw two more of these two species pair, and a day later we each saw the same thing repeated. The males in every case were *D. unicolor*, and the females *D. arvensis*. I had previously noticed that of about forty specimens of each of these species in my collection all of the former were males and all of the latter were females. Say also notes the fact that only the male of *unicolor* and the female of *arvensis* are known. These facts with the above observations put it beyond a doubt that these two saw-flies are male and female of the same species. As *unicolor* Beauv. was first described (1805), this name will hold for the species, and *arvensis* Say will have to fall to the rank of a synonym. While mating the male and female face in opposite directions, and the wings and abdomen of the male are covered by the wings of the female. The union lasts but three or four seconds.

C. P. GILLETTE.

EXCURSION.—The committee from the Brooklyn, Newark and Philadelphia Societies have decided upon Upper Jamesburg, N. J., as the place where the field-meeting of the entomologists of the three cities and neighboring points is to take place on the 4th of July next. Jamesburg is on the Amboy Division of the Pennsylvania Railroad, and may be reached from New York *via* Perth Amboy and Rahway at 9.10 a. m., Newark at 9.36 a. m.; *via* Monmouth Junction, New York, 7.20 a. m., Newark 7.50 a. m. Leave Philadelphia from Broad Street Station at 6.50 a. m., *via* Camden, at 7.10 a. m. The 7.20 a. m. from New York *via* Monmouth Junction, meets the 6.50 from Philadelphia at Monmouth Junction, and this train is recommended, as it will bring the party into Jamesburg at the same time. Excursion fare about $2.10 from New York and Philadelphia. All the entomologists desiring to attend will be heartily welcomed, whether members of the societies organizing the excursion or not, but in order that the necessary arrangements for creature comforts can be made, all those expecting to take part in the field-meeting will please notify one of the members of the committee as soon as convenient. Further information can be obtained from the committee:

Dr. D. M. Castle, 2007 Arch Street, Philadelphia.
C. P. Machesney, 65 Broadway, N. Y.
C. H. Roberts, 235 W. 122d Street, N. Y.
J. B. Smith, Rutgers College, New Brunswick, N. J.
H. W. Wenzel, 1115 Moore Street, Philadelphia.

Entomological Literature.

NATURE, February, '90.—Notes on Dr. A. R. Wallace's "Darwinism," by T. D. A. Cockerell (an interesting paper, largely entomological).

ENTOMOLOGISCHE NACHRICHTEN, xvi, No. 6, March, 1890.—"The Genera and Species of Cryptinæ revised and tabulated I," O. Schmiedeknecht.

ANALES DE LA SOCIEDAD CIENTIFICA, xxix.—Systematic and synonymic enumeration of the Argentine, Chilian and Uruguayan Formicidæ, Dr. C. Berg.

REVUE BIOLOGIQUE DU NORD DE LA FRANCE, 2e Année, No. 7, April, 1890.—"Acarines and Marine Insects of the sides of the Boulonnais (continued)," R. Moniez.

LE NATURLISTE CANADIEN, April, 1890.—Continuation of the Hemiptera-Homoptera of the Province of Quebec, contains the following new species, *Pemphigus alni*.

ATTI DEL REALE ISTITUTO VENETO DI SCIENZE, LETTERE ED ARTI (November, 1888—October, 1889), Tomo vii, "View of the Italian Acarofauna," G. Canestrini, with four plates.

OVERSIGT OVER DET KONGELIGE DANSKE VIDENSKABERNES SELSKABS (Copenhagen). Bulletin for 1889, No. 2.—"Contribution to the anatomy of the Ant-lions," by Fr. Meinert, with two plates.

COMPT. RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, 1 Mars, 1890. —"Heterocera Exotica, new genus and species from the Dutch East Indies (continued)," by J. M. Heylaerts; *Squamura* n. g.

NATURWISSENSCHAFTLICHE WOCHENSCHRIFT (Berlin) for Mar. 2, 1890, contains an article on swarms of "Butterflies in the South Atlantic Ocean remote from the land," off the Argentine coast, in February, 1887.

THE ZEITSCHRIFT FUR WISSENSCHAFTLICHE ZOOLOGIE, vol. xlix, heft 3, contains "Researches on the first embryological phenomena in the eggs of Insects—I. The egg of *Pieris brassica*," H. Henking, with three plates.

LE NATURLISTE CANADIEN for February, 1890.—Continuation of the notes on Hemiptera—Homoptera of Quebec (fams. Jassidæ and Psyllidæ); a new species of *Erythroneura* (*E. mali*) and one of *Idiocerus* (*I. Duzeei*) are described.

LE NATURLISTE CANADIEN, March, 1890.—"Hemiptera-Homoptera of the Province of Quebec (continued)," fams. Psyllidæ and Aphidæ; includes the following new species: *Psylla recticeps*, *Diraphia 4-cornis*, *D. sanguinea*, *Livia saltatrix*, *L. bifasciata*.

Proceedings of the California Academy of Sciences II, 1889.—Entomological Communications, Dr. H. H. Behr; genus *Neophasia* Behr = *Eucheira* Westw., with three species, *socialis* Westw., *Terlootii* Behr, *menapia* Feld.; *Dryocampa Riversii* n. sp., Cal.

Memoires de la Societe de Physique et d'Histoire Naturelle de Geneve, xxx, No. 6.—New or little-known Locustidæ, A. Pictet; contains many new genera and species, including the following from North America, *Idiostatus* n. g., *I. californicus*, figured.

Zoologischer Anzeiger, xiii, No. 329, 10 Mar. 1890.—"Butterflies' wings and the Imaginal disk of the same," and "Gland-system of the Skin in Bombycidæ (silk-spinners), by E. Verson. No. 330, 17 Mar., '90. "On the Embryology of *Blatta germanica*" by N. Cholodkovsky.

We have lately received Vol. i, No. 1, of the Entomologist's Record and Journal of Variation, edited by J. W. Tutt. This fills a very important gap in entomological literature, and is both interesting and useful from a scientific standpoint. We wish it all success and a long life.

In the Comptes-Rendus des Seances de la Societe Entomologique de Belgique for Feb. 1, 1890.—A Forel has a note on "A parasite of *Myrmecia forficata* Fabr." The parasite is also a hymenopter, *Encharis myrmeciæ* P. Cam., whose nymphs were found in chrysalids of the *Myrmecia* from South Australia.

Entomologische Nachrichten, xvi, 4, February, 1890.—New Histeridæ, J. Schmidt; includes one North American species, *Saprinus sulcatulus*, from California. Orthopterological communications, Dr. F. Karsch; on *Phaneroptera* from Asia and Africa; two new genera are formed, *Ceratopompa* and *Tetraconcha*.

From Prof. C. Berg we have received a copy of his "Quadraginta Coleoptera Nova Argentino (from Ann. Univer. Buenos Aires, vi, 1889)." The forty new species from the Argentine Republic here described are of the families Cerambycidæ, Meloidæ, Mordellidæ, Cistelidæ, Tenebrionidæ, Malacodermata and Buprestidæ.

Memoirs of the Museum of Comparative Zoology at Harvard College, Vol. xvii, No. 1, is Mr. L. Cabot's.—"The Immature State of the Odonata, Part III.—Subfamily Cordulina," with six plates. The nymphs of twenty-four species of *Cordulina* and eleven species of *Pantala* and *Tramea*, are described and figured excellently.

We have received from M. Ernest Olivier his excellent Catalogue of the Coleoptera of the Department of the Allier, France, forming Part I of Volume II, of "Faune de l'Allier," published at Moulins, 1890. Faunal lists of restricted areas are always of value as supplying data for geographical distribution, and such is M. Olivier's work, which fills 375 pages, and is provided with a valuable index—table of genera.

Abhandlungen [des] Senckenbergischen Naturforschenden Gesellschaft (Frankfurt a. M.), xvi, heft 1, '90.—"The Lepidopterous Fauna of the Island of Porto Rico," H. B. Möschler, 1 plate; contains numerous new genera and new species. This is a very useful and important paper, as it gives a complete list of the species of the island, both macro and micro, with all the references (pp. 290).

Memorie della R. Accademia delle Scienze dell' Istituto di Bologna, Serie iv, Tomo ix, 1888.—"On the Figure and Structure of the Facets of the Cornea and on the Refractive Medium of the Compound Eyes of the Muscidæ," G. V. Ciaccio, 1 plate. "Anatomical Composition of the Nerves and their mode of termination in the muscles of the Grasshopper (*Oediopoda fasciata* Siebold), V. Mazzoni, one plate.

Icones Ornithopterorum.—A monograph of the Rhopalocerous genus Ornithoptera, or Bird-wing Butterflies by Robert H. F. Rippon; Part 1. To be completed in twenty parts, with a map and nearly eighty plates; Part 1 contains four plates, giving colored figures and the neuration of *O. urvilliana*, *hippolytus* and *crœsus*. The text is very exhaustive. If the remaining parts are in the same style as the first, the above will be a grand work.

The Fossil Butterflies of Florissant, Samuel H. Scudder.—This is an extract from the eighth annual report of the Director of the Department of the Interior, 35 pp. 2 plates. The following new genera are described: *Jupiteria*, *Lithopsyche*, *Nymphalites*, *Apanthesis*, *Prolibythea* and *Stolopsyche*. The new species are *Jupiteria charon*, *Lithopsyche styx*, *Nymphalites obscurum*, *Apanthesis leuce*, *Prolibythea vagabunda* and *Stolopsyche libytheoides*.

The Young Naturalist, January, 1890 (London).—The Origin and Loss of the Wings of Insects, Linnaeus Greening. The Pterophorina of Britain, J. W. Tutt. Same for February, 1890. The Pterophorina of Britain (continued). Notes on the possible advantages of melanic variations to Lepidoptera, Lord Walsingham. The Origin and Loss of Wings of Insects, Linnaeus Greening. Curious Visitors at Sugar, G. Pullen. Retarded Emergence, John E. Robson.

Transactions Entomological Society of London, Part 1, 1890, with six plates. On the phylogenetic significance of the wing-markings in certain genera of the Nymphalidæ, Frederick A. Dixey. Systematic temperature experiments on some Lepidoptera in all their stages, Frederic Merrifield. This paper and the accompanying plates are of great interest, as they show one of the causes of variation in a species, and also teach an important lesson to those who are too hasty in describing new species of Lepidoptera.

Annalen des k. k. Naturhistorischen Hofmuseums (Wien), Bd. iv, No. 4, 1889.—The Hymenopterous Group of the Evaniidæ, monographically treated," by A. Schletterer, 3d Abtheilung, with four plates;

numerous new species are described from all parts of the world, including five species of *Gasteruption* from North America, Bd. v, No. 1, 1890. "[Contribution] to the knowledge of the *Pemphredons*," by F. F. Kohl, including, besides other new species, three from North America of the genera *Cemonus*, *Ammoptanus?* and *Stigmus*.

Horæ Societatis Entomologicæ Rossicæ, xxiii, 1890, contains papers on Russian and Asiatic insects, including new species of Heteroptera, Hymenoptera, Coleoptera and Lepidoptera; Revision of the copulatory armature of the males of the Chrysides, Gen. Radoszowski; On the anatomy of *Sesia apiformis* and *tipuliformis*, E. Brandt; Anatomy of *Vermipsylla alacurt*, J. Wagner; Revision of the European species of the genus *Phronia* Winnertz, with the descriptions of two new genera, *Macrobrachius* and *Megophthalmidia*, H. Driedzicki, etc.

Biologia Centrali-Americana; Part lxxxii, Feb., 1890.—Arachnida-Araneidea O. P. Cambridge, pp. 57—64, pl. 6; Coleoptera, vol. 2, pt. 1, D. Sharp, pp. 305—312, vol. 3, pt. 1, C. O. Waterhouse, pl. 9, vol. 6, pt. 1, supplement, M. Jacoby, pp. 169—176. Lepidoptera-Heterocera, vol. 1, H. Druce, pp. 369—384, pl. 32. Diptera, vol. 2, F. M. van der Wulp, pp. 57—88; Part lxxxiv, Arachnida-Acaridea, Otto Stoll, pp. 17—24, pls. 12—14. Coleoptera, vol. 2, pt. 1, D. Sharp, pp. 313—336, vol. 7, H. S. Gorham, pp. 129—144, pl. 7. Hymenoptera, vol. 2, P. Cameron, pp. 65—80, pl. 5. Lepidoptera-Heterocera, vol. 1, H. Druce, pp. 385—392. Rhynchota-Heteroptera, W. L. Distant, pp. 329—336. Diptera, vol. 2, F. M. van der Wulp, pp. 89—112.

Berliner Entomologische Zeitschrift, xxxiii, 2 heft.—The Hymenopterous genera *Stenophasmus* Sm., *Monomachus* Westw., *Pelecinus* Latr. and *Megalyra* Westw., monographically treated," A. Schletterer. "Contribution to the knowledge of the Ascalaphidæ of Madagascar," Dr. F. Karsch;* *Balanopteryx*, *Amœridops* n. g. "On a new East-African genus of Libellulidæ, separated for *Idionyx luctifera* Selys,"* Dr. F. Karsch, *Schizonyx*, also *Dicranopyga*, n. g." "New Histeridæ from Paraguay," J. Schmidt; *Hesperodromus*, *Discoscelis*, *Colonides*, *Termitoxenus*, n. g. "Contributions to the knowledge of the species and genera of Libellulina,"* Dr. F. Karsch; *Pallothemis*, *Potamarcha*, *Corduliops*, *Helothemis*, *Malamarptis*, *Oligoclada*, *Micromacromia*, *Allorhizucha* n. g. "Three new Tenebrionidæ from Tripoli,"* G. Quedenfeldt; *Pachylodera* n. g.

Les insectes vesicants.—H. Beauregard, Paris, 1890. A large octavo volume of nearly 600 pages with many illustrations in the text and large lithographic plates of anatomical and microscopical details. It is divided into four parts, the first is anatomical, second the physiology and pharmacology, with special researches on the seat of the vesicating property, the third is devoted to classification, the fourth a catalogue of all species de-

* Contains new species other than North American.

scribed to date. A new classification is adopted, based on the habits of the secondary larva, which does not differ materially from that already in vogue, based on the characters of the insects themselves. Some of our genera were unknown to the author, and a good number fairly well misunderstood. While the work will be useful for reference as a compendium it will hardly become a standard in classification.—G. H. H.

Verhandlungen der k. k. Zoologisch-Botanisch Gesellschaft in Wien, Bd. xxxix, Heft 3.—"Contributions to the knowledge of the chilopods," B. Schaufler, with one plate and four zincographs, treating of the male and female genital organs. "Arachnidæ Transcaspicæ," E. Simon, describing new species and three new genera, *Attulus* (fam. Attidæ), *Scylax* (fam. Drassidæ) and *Phyxioschema* (fam. Avicularidæ), Heft 4 (same Band). "Determination-table of the Trichopterygidæ of the European faunal district," by C. Flach, with five plates and one zincograph; the table is arranged both for genera and species, and includes six new species. "Fourth Contribution to the Dipterous Fauna of Tyrol," E. Pokorny, including new species of various genera of the families Bibionidæ, Anthomyzinæ and Helomyzinæ, and establishing two new genera, *Chiastocheta* (fam. Anthomyzinæ), type *Aricia trollii* Ztt., and *Steringomyia* (fam. Sarcophaginæ), type *S. stylifera* n. sp.

North American Lepidoptera. Revised Check-List of the N. American Noctuidæ by A. Radcliffe Grote, A. M., Part I. Thyatirinæ—Noctuinæ. Bremen, 1890. Printed by Homeyer & Meyer, Rutenhof, pp. 52. Preface and Index.—This list, Mr. Grote states, is to supersede or take the place of the list of 1875–76, and like the latter the new list simply enumerates the species and proposes a number of new generic terms without description. "So far as I am concerned it closes my thirty years' work in the North American Owlet moths and represents my present comprehension of the natural classification of the family."* Mr. Grote separates the usual small aggregation as Thyatirinæ, and places all the rest of the genera into the Noctuinæ, dividing them tribally. The Bombycoidi head the list with three genera. In this tribe and in the preceding subfamily species described by Dr. Strecker, Mr. Edwards and myself, even as far back as 1876; have been omitted.

The Apatelini contain fourteen genera. The Agrotini contain eleven; about fifty species of *Agrotis* described by myself are omitted. In suggesting that the species of *Agrotis* need re-arrangement, a series of characters is given with a show of originality, although they had been used by European authors thirty years ago. Mr. Grote is comfortably unaware that over one hundred species of what he calls *Agrotis* are structurally absolutely identical with the two species which he separates as *Carneades*.

The Dicopini follow, with four genera.

The Hadenini contain forty-four genera, and in this tribe are contained

* See Proc. Am. Phil. Soc. xxi, 143, 1887, for almost identical language.

the typical Owlets. The species and genera referable here, described by me in 1887 are omitted, and my Revisions of *Oncocnemis*, *Oligia* and *Pseudanarta*, are apparently unknown to the author.

The Arzamini have two genera, the Nonagriini eight, the Scolocampini six, and *Nolophana* has a little tribe all by itself. Six genera constitute the Caradrini, while the Orthosiini contain thirty-three genera, among them *Tæniocampa*, *Glæa* and *Orthosia*. As usual, my genera and species are omitted, even those described in 1887. My recent Revision of Tæniocampinæ Proc. U. S. Nat. Mus. 1889, pp. 455–496, places the species and genera into a more natural grouping.

The Calocampini have three genera, *Cleophana* and *Cucullia* each form a tribe, the Eutelini have three genera, the Anomiini five, while *Litoprosopus* again forms a singular tribe.

The Plusiini have six, the Calpini four, and the Stiriini eight genera.

In the Heliothini Mr. Grote proposes a few more generic names, and adds *Lepipolys*, *Anarta*, *Cirrhophanus* and *Annaphila* to the tribe.

The Tarachini contain three genera, and *Cerathosia* is placed here and elevated to the tribal rank. Mr. Grote again goes over my supposed blunders and does not seem to know my paper in which the venation is figured. I have explained how the obliteration of vein 5 of secondaries by the Canada balsam caused my mistake. Mr. Grote affects to discredit this explanation, which all, who have ever mounted bleached wings, can easily substantiate. Knowing the danger as I did, I should have been more careful; but, as it is the only mistake of mine Mr. Grote ever discovered, he will no doubt continue to harp on it. The Eustrotiinæ contain all the remaining genera save *Hyblæa*, which forms a tribe. The remainder of the pamphlet is taken up with generalities and criticisms, in which Messrs. Riley, Hulst and myself fare ill. In his characterization of the Noctuidæ Mr. Grote says: "the front pair [of tibiæ] rarely with an epiphysis." I know of no species in which this organ is wanting. It is scarcely worth while noticing the vagaries of these ten pages, winding up with "But I have no longer time to indulge in philosophy or sentiment. Already I hear the roaring of the lions from those heights where Dr. C. V. Riley and Professor J. B. Smith browse together upon Government pastures" !!!

This is pathetic, undoubtedly, and characterizes the list, which is fully five years behind the time, and is as remarkable for what it lacks as for what it contains.—JOHN B. SMITH.

ENTOMOLOGICAL NEWS for May was mailed May 3, 1890.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

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WINTER COLLECTING IN FLORIDA.

BY ANNIE TRUMBULL SLOSSON.

(Continued from p. 83, vol. i.)

To attract moths at night we used a large lamp with Rochester burner, giving a very brilliant light. The first time we tried it very few insects came, though the night seemed favorable, warm, dark and still. After waiting an hour or two, with little gain, we extinguished the lamp preparatory to going indoors, when, at once, moths began flying into the dimly-lighted windows and resting there. This occurred again and again, until we felt assured that our brilliant light frightened away rather than tempted the moths of Punta Gorda. It was not until some weeks after our discovery of this fact that we read in ENTOMOLOGICAL NEWS for February of Mr. Doherty's letter as to his collecting in the Naga Hills. In this you will remember he expresses the opinion that "light used in out-of-the-way places repels rather than attracts." I frequently spent an evening in my room with a bright gas-light and a large kerosene lamp burning directly in front of the open window. No insects came, but when I had turned out the gas and lowered the flame of my lamp, moths would soon begin to fly in.

At sugar, although the number of moths taken was large, the variety was very small. In a catch of fifty or sixty moths there would often be but two or three species. *Eubolina stylobata* was always at these sugar stations in large numbers, also *Agrotis incivis*, *A. malefida* and various species of Homoptera, particularly *H. edusina* and *H. benesignata*.

The colony of West Indian insects, of which Mr. Schwartz and others have written, is well represented at Punta Gorda. I found one night resting near a lighted window a beautiful specimen of the "Spanish moth," *Euthisanotia timais* Cram. It bore the bloom of extreme youth, and could not have emerged from the pupa many hours before. It is an exquisite creature, with its fore wings of carmine and orange and secondaries of leaden black.

I took also one specimen of a Sphingid described and figured by Grote in his "Notes on Cuban Sphingidæ (Proc. Ent. Soc. Phil. vol. v)," *Hemeroplanes pseudothyreus*. I do not recall its record from Florida previous to my capture, but it should have its place in our lists. It is a curious insect, much like *Thyreus* in general appearance, but with a peculiar discal mark, like a white arrow-head, with a small white dash above it. Many fine fresh specimens of the large geometer *Oxydia vesuliata* Cram. flew to the lighted windows at night. They are exceedingly variable, some very dark purple-brown, some uniformly light grayish drab, and others with median space of pale ochre, but all with the distinctive large, black, diffuse patch on secondaries, near outer margin. I found also *Urapteryx floridata* Gr.

Doubtless many of my unidentified moths will prove to be West Indian forms. Although I found so many interesting species in Florida this Winter, yet insects were much less plentiful than in ordinary seasons. The long continued drought, with one or two severe freezes, interfered seriously with plant and insect life. In a dozen years I have never seen a Winter where butterflies were so scarce; every one spoke of this, and even the ordinary tourist noticed it.

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ELEMENTARY ENTOMOLOGY.

Third Paper—Regions and Appendages of Insects.

The Head.

As stated in the first paper of this series,* the body of a per-

* Entomological News, i, pp. 70—71. May, 1890.

fect insect is divided into three regions,—the head, the thorax and the abdomen.

This division into regions is not to be confounded with the division into segments; each region consists of a number of segments. In the case of those insects undergoing a complete transformation (butterflies, bees, beetles, etc.), it is only the imago whose body shows clearly this division into three regions. On the other hand, the larvæ of such insects as dragonflies and grasshoppers, whose transformation is incomplete, show a very marked division into three regions, even when just hatched from the egg. The tri-regional division of the body may be more or less clearly perceived in those insects referred to in the first paper as passing through two states,—fish moths and spring tails.

Many of the segments of an insect's body bear paired, jointed appendages, one pair to a segment. These appendages may be antennæ ("feelers"), jaws, legs, claspers, etc. The wings, although often spoken of as appendages, do not anatomically correspond, or are not *homologous** to the appendages just referred to.

The form, proportion, shape and relative development of the different parts of the trunk and appendages of insects vary very greatly. Only the more general, typical arrangement of these parts will be described in these papers treating of insects in general. The modifications must be left to subsequent papers on the separate orders. In these general papers reference is usually made to the imago, when describing anatomical parts.

THE HEAD of the imago is usually distinct from the rest of the body. The segments of which it is composed are not easily distinguishable, owing to the sutures being more or less obliterated, and one might be tempted to say at first sight, that it consisted of but one segment. Comparative study, however, has shown that it is composed, not of one, but of several segments. The exact number is perhaps four, although this is not entirely certain.

Prof. Comstock has adopted a convenient classification of the parts of the head, which we cannot do better than follow here. He divides the parts of the head into fixed parts and movable parts.

The fixed parts are the *compound eyes*, the *simple eyes*, the *occiput*, the *epicranium*, the *clypeus*, and the *gula*.

* In the technical language of Comparative Biology, *homologous* refers to *anatomical* similarity, *analogous* to *physiological* similarity.

The movable parts are the *antennæ* and the *mouth parts.*

The compound eyes (fig. 1, *a*) are quite conspicuous, and usually are easily seen and recognized as eyes. They are two in number, and are placed one on each side of the head. The surface of each compound eye is made up of a large number of hexagonal facets, fitting against each other like the cells of a honey-comb. Each facet is the cornea of a distinct simple eye. The number of facets in the compound eyes of different insects varies from 50 to 30,000 (Comstock). Sometimes the facets are quadrangular (Packard).

The simple eyes (fig. 1, *e*) are small and not very conspicuous. They are placed on the top (dorsal* surface) of the head, between the compound eyes. Ordinarily there are three simple eyes, but their number varies from one to four; they are usually wanting in beetles. Compound eyes are clusters of simple eyes. Larvæ have only simple eyes, situated on the sides of the head. During growth they "increase in number, and finally coalesce to form the compound eye, or compound cornea, the surface of which is very convex and protuberant in the predaceous insects, or those requiring an extended field of vision (Packard's Guide)." Usually the compound eyes are referred to as simply "the eyes," while the simple eyes are termed *ocelli* (singular *ocellus*) or *stemmata* (sing. *stemma*).

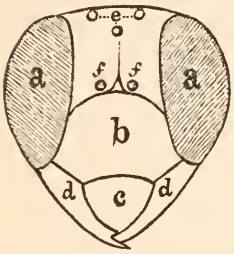

Fig. 1, Front view of the Head of a Wasp.

a, *a*, the compound eyes; *b*, the clypeus; *c*, the labrum; *d*, the mandibles; *e*, three ocelli, or simple eyes; *f*, *f*, places of insertion of antennæ. The letter *e* is placed upon the vertex, *f f* upon the frons.

The occiput is the rear or base of the head, and articulates with the first segment of the thorax.

The epicranium (fig. 1) is in front of the occiput, and, in general, forms the top or dorsal portion of the head, but it very often forms part of the sides of the head and even of the under (ventral) surface. On account of its extent, names have been given to different parts of the epicranium. The *vertex* is its topmost (most dorsal) part, the *front* or *frons* is its most anterior part, the *genæ*, or cheeks, its sides, or lateral parts. The ocelli are usually situated on the vertex.

* When an insect is standing in natural position, its upper surface is *dorsal*, its lower surface *ventral*.

The normal position of the clypeus (fig. 1, *b*) is anterior to the epicranium. Typically, it is composed of two sclerites, the *hind-*, *post-*, or *supra-clypeus*, and the *fore-*, *ante-*, or *infra-clypeus*. The term *epistoma* is equivalent to clypeus. In some insects the equivalent of the clypeus is composed of two pieces, an upper called *nasus*, and a lower or *rhinarium*; again the rhinarium may be absent. To the lower or anterior border of the clypeus is attached the labrum, or upper lip.

The gula is in front of, or below the occiput, and is confined to the under or ventral surface of the head. To its anterior border is attached the labium, or lower lip.

The sutures between the fixed parts of the head may be wanting, and the shape and extent of the parts vary greatly. In many insects the fixed parts, excepting the eyes and ocelli, are more or less covered with hair, so that the shape of the parts cannot be seen until the hair is removed. P. P. C.

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Two Species of Lepidoptera new to our Lists.

BY HARRISON G. DYAR.

While at Lake Worth, Florida, last Winter I captured specimens of two species not in our lists. They are the following:

Callidryas statira Cram.—The ♂ is of the color of *C. eubule*, but the border of raised scales extends more than half way across the wing, and there is a large spot of these scales in the end of the cell. The inner edge of this border is nearly straight, and it is very pale yellow, almost white. On the hind wings the border is narrower, more irregular, and ends before the anal angle. Below much as in *C. eubule* ♂, but with only faint traces of any spots.

Taken with *Callidryas eubule* and *C. agarithe*, but less common. January.

Composia fidelissima Herrich-Schaffer.—♂ ♀. Head black, with two white spots. Collar and thorax black, with small white spots. Abdomen black, with a very strong blue reflection and a double row of small white spots on the last segments in the ♂. Below neatly banded with white; wings black, a strong blue reflection at the base and end of the cell of primaries and on basal two-thirds of secondaries. On costa of primaries at base are

three subquadrate, crimson spots, more or less confluent. In the cell are two white spots, the outer continued on to the costa, but interrupted by the vein. A marginal and a transverse row of white spots, the latter from costa beyond cell to middle of outer margin composed of five spots the last small. The marginal row starts on costa before apex and has four intervenular spots, each nearer the outer margin than the last, and two more spots below, the last above the submedian vein, the one before it large and round. A small spot at base of the wing above submedian vein. The secondaries have a marginal row of nine white spots, the first at the apex, the fourth and the ninth at basal angle, small. Below as above, but the blue reflection on primaries is more extensive. Legs marked and banded with white.

This Zygænid was taken abundantly towards evening flying with *Syntomeida epilais* Walk., than which it was much more abundant.

The flora of the strip of land between Lake Worth and the ocean, as well as that between Indian River and the ocean partakes of a decidedly subtropical character, and many Cuban species find their homes here, of which the occurrence of the above-mentioned species is an example.

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DESCRIPTION OF THREE NEW SPECIES OF HYMENOPTERA.

BY WILLIAM J. FOX.

Hoplisus foveolata n. sp.

♀.—Black, shining; head sparsely punctured, hardly as wide as the thorax; clypeus, labrum, basal half of mandibles, scape, first six joints of flagellum, thorax, spots on posterior tarsal joints near apex, and basal segment of abdomen, except ring at apical margin, dark reddish brown; clypeus covered with silvery pubescence in certain lights, with long golden hairs; labrum with a fringe of golden hairs on anterior margin; face with a distinct furrow extending from the lower ocellus to the middle of the face; metathorax feebly punctate, covered with pale brownish pubescence, a deep longitudinal furrow extending from base to apex, interrupted at tip of enclosed triangular space by a deep fovea, the oblique lateral furrows enclosing the triangular space foveolate; wings fuliginous-brown, iridescent; second recurrent

nervure received by the second submarginal cell before its apex; line on anterior orbits, apical margin of scutellum, tarsi, and ring on apical margin of basal segment, yellowish; remaining segments of abdomen black. Length .55–.60 inch.

Two specimens, Florida. Collected by Charles W. Johnson, of the Wagner Institution, Philadelphia.

This species resembles somewhat *H. Smithii* Cress., from Illinois, but the wings are darker, the second recurrent nervure is not confluent with the second transverse cubital nervure and the basal segment with the largest portion of it brownish.

Philanthus eurynome n. sp.

♀.—Black, shining, deeply, but not closely punctured; vertex, cheeks, thorax on sides and beneath covered with pale pubescence; spot on anterior part of raised space between antennæ, sides of face, narrowed to emargination of the eyes; mandibles, except tip, scape, elongate spot beneath anterior wings, tegulæ, postscutellum, large lateral spots on second segment, elongate spots on third and fourth, the latter with two elongate marks on apical margin yellow; first three joints of flagellum entirely and the remaining joints beneath, raised space between antennæ basally, broad band on occiput extending down to the centre of the cheeks, line on collar, scutellum, first segment, except extreme base, above and beneath, second segment above and apical margins of all the segments dark reddish brown; the first dorsal segment with a deep, black, transverse furrow before its apical margin, the second having a black line before its apical margin; metathorax with a deep furrow extending from base to centre, where it is interrupted, the furrow continuing from a deep fovea and extending almost to the apex; wings yellowish hyaline, with darker apical margins, slightly iridescent, nervures and stigma yellowish brown, first recurrent nervure received by the second submarginal cell at the middle, the second received by the third submarginal cell a little beyond the base; legs brownish, a spot in front and on tips of anterior femora, base of anterior tibiæ and medial tibiæ in front and at base yellow. Length .57 inch.

One specimen. Collected by Mr. C. W. Johnson, in Florida.

Cœlioxys dolichos n. sp.

♀.—Black, shining; head and thorax sparsely punctured; sides of the face, cheeks, thorax beneath, metathorax, legs, basal

and apical margins of first segment and apical margin of the second, third and fourth segments with pale pubescence; tegulæ impunctured; prothorax produced into a tooth laterally; scutellum produced out over the metathorax in a sharp angle, the lateral teeth long, not acute, the disc of scutellum smooth, shining, impunctured; basal third of wings hyaline, the remaining two-thirds fuscous, slightly iridescent; first recurrent nervure received by the second submarginal cell beyond its base, the second recurrent nervure received by it before its apex; spines of the tibiæ and the tarsi slightly brownish; abdomen sparsely punctured, more closely so on the sides, basal and apical margins of the segments, basal segment concave in front, a distinct carina, beginning at the base of the second dorsal segment and extending to apex, the carina very strongly marked on apical half of last segment, the latter excavated on each side of the carina, compressed before its apex, beneath also carinated, the carina extending out into a point, which is plainly seen from above, the segments beneath with a well marked impunctured apical margin. Length .55 inch.

One specimen, Collected by Charles W. Johnson, in Florida.

This species can at once be distinguished by the carina on the dorsal segments of abdomen.

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SOME EXPERIENCES IN LARVÆ REARING.

BY ROBERT BUNKER.

If one wishes to gain a knowledge of the life history of a species, it is absolutely necessary to begin with the egg and follow it carefully through the different stages to the imago; and not only one season should be devoted to it, but the same species should be reared several years in succession in order to learn all the varieties of color ornamentation and deviations from the typical form. Such a course would be to the student or beginner like the turning of the kaleidoscope, every turn would bring to view some new variety, some new form, some new feature he had not seen before; and occasionally a veritable monstrosity would come to the front and startle him by its unique appearance. There are other advantages to be gained by rearing moths and butterflies from eggs, you get rid of that bane of the collector—the insidious parasite. One also stands a far better chance of getting rare spe-

cies, and we may add more perfect ones than by hunting up the imagos. I began rearing moths from eggs many years ago, but confined myself to eggs of foreign silk moths which I could obtain in no other way. Fortunately, a few years ago I found a female *Smerinthus modestus* on the Lombardy Poplar, she laid quite a number of eggs, from which I reared moths and wrote a description of their life history, which was published in the "Canadian Entomologist" at the time, so it is not necessary to re-write it now, but will mention one characteristic I have not noticed in any other species. While feeding, most larva clasp the leaf with their prolegs and manipulate with the mouth and true legs, the body being on a line with the edge of the leaf, but this species, while feeding, rests with its body stretched out at right angles to the edge of the leaf, and by reaching over and turning the head so as to face the edge of the leaf, feeds without inconvenience and as the leaf is eaten away moves up and down laterally. I was curious to know what the result would be when the leaf was eaten, so that there was no standing room, but the difficulty was overcome by abandoning the leaf when half eaten for a fresh one.

A larva that has been attacked by pararsites may sometimes be resuscitated. On one occasion I found a half grown larva of *Thyreus Abboti* on the grape vine, and on the sides of the thorax were half a score or more of eggs; they had hatched out and the young worms had entered the body of their victim, but as the shells of the eggs had been recently broken I thought I would try the effect of chloroform upon the larva, so procuring a feather I swabed the parts thoroughly. Now, it is well known that this species and *Deidamia inscripta* are very sensitive to the touch, and will wriggle around in a vicious manner if touched with a straw or the tip of the finger, but when I applied the chloroform its contortions were violent, a regular cyclone; so violent were its movements that it would throw itself up clear from the earth at the bottom of the cage, and I began to fear the cage itself was in danger of being wrecked. It finally subsided and appeared to be dead. Two hours later, on looking into the cage, I found my sick patient had rallied and was crawling slowly about. I gave it another big dose, and after placing some fresh grape leaves in the cage, left it for the night. The next morning, to my surprise, it had fully recovered, and was apparently as well as ever, and

was partaking of the aliment set before it in a very satisfactory manner. After the harsh treatment it had received it began to feed regularly, and in two weeks got its growth, buried itself, and came out a perfect moth the following June.

(To be continued.)

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

IN accordance with the notice on second page of cover, no numbers of ENTOMOLOGICAL NEWS were published in July and August, as every one is interested in collecting, and it is also the time when people take their vacation, the editior and advisory committee included. This is inserted for those who were looking for the NEWS during the last two months.

A SPECIMEN of *Papilio palamedes* was captured in Philadelphia this Summer, it was bright and fresh. Virginia is the northermost point given in the catalogues.

A SWARM of butterflies halted near Placerville, Cal., the other day, and for a time "they were so thick about the springs and moist places that teamsters couldn't see their leaders."

HEMIPTEROLOGISTS will be interested to know that I took many specimens of both sexes of the winged form of *Metrobates hesperius* Uhl. on the Tennessee River at Knoxville, Tenn., June 15th. Hitherto, I believe, the winged form of this species has been found only in the West Indies.

Prof. H. E. SUMMERS.

MR. W. F. KIRBY, author of "A Synonymic Catalogue of Diurnal Lepidoptera," will publish, shortly with Messrs. Gurney & Jackson, "A Synonymic Catalogue of Neuroptera Odonata," or Dragonflies. He hopes to bring out afterwards the first volume of his "Catalogue of Lepidoptera-Heterocera," a work which has engaged his attention for nearly twenty years.

AS TO FLIES.—So you want to know where the flies come from, do you, Lucullus? Well, the cyclone makes the house fly, the blacksmith makes the fire fly, the carpenter makes the saw fly, the driver makes the horse fly, the grocer makes the sand fly, the boarder makes the butter fly, and if that is not enough for you you will have to pursue your future studies in entomology alone.

Prof. Angelo Heilprin found two species of butterflies buried in the snow on the glacier he discovered on the volcano of Ixtaccihuatl in Mexico. There was a snow storm the previous night and the butterflies were evidently blown up to this height (15,500 feet). The species were *Colias cæsonia* and *Terias sp.* The specimen of *Terias* was in too bad a condition to identify.

Mr. Philip Laurent found *Pamphila panoquin* fresh and bright on June 29th, at Anglesea, N. J. He succeeded in getting the eggs, but the larvæ would not feed on ordinary grass. There is another brood on the Atlantic coast which appears about August 22d, having been found at this time at Cape May, N. J., by Dr. Skinner. The food-plant is supposed to be marsh grass which grows in the salt meadows.

The Field Meeting at Jamesburg, N. J.—A field meeting of the entomological societies of Brooklyn, Newark and Philadelphia, was held on July 4th at Jamesburg, N. J. The societies represented were the Feldman Collecting Club, American Entomological Society and Entomological Section of the Academy of Natural Sciences from Philadelphia, and the Entomological Societies of Brooklyn and Newark. Jamesburg is situated in the Cranberry bog region of New Jersey, and is a very interesting locality entomologically. The headquarters of the meet was a very pretty grove, from which the members spread out in various directions in search of bugs. The object of the meeting was the fostering of scientific and social intercourse among the entomologists of the three cities. The Feldman Collecting Club was represented by Messrs. J. H. B. Bland (President), Wenzel, Dr. Castle, Laurent, E. Wenzel, Boerner, Hoyer, Schmitz and Tresher, and the American Entomological Society and Entomological Section of the Academy of Natural Sciences by Mr. I. C. Martindale, Dr. G. H. Horn and Dr. H. Skinner; Brooklyn, by Messrs. Meeske, Leng, Davis, Dietz, Harbeck, Merkel, Beyer, Smith and Banks; Newark, by Messrs. Machesney, Stortz, Angelman, Loeffler, Hess, Leib and Crane. After collecting for a couple of hours a luncheon was served in the grove and a photograph taken of the party. A meeting was then called to organize permanently. Dr. George H. Horn, President of the American Entomological Society and Professor of Entomology in the University of Pennsylvania, was chosen chairman. The chair nominated the following committee to confer with their respective societies in regard to the advisability of holding an annual meet and to select the time and place. Mr. H. W. Wenzel, of the Feldman Collecting Club; Professor J. B. Smith, State Entomologist of New Jersey and Professor of Natural History in Rutgers College, for the Brooklyn Society; Mr. Machesney, of Newark, and Dr. Henry Skinner, Curator of the American Entomological Society of Philadelphia. Altogether, a very pleasant day was spent and the first meeting was a grand success.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be limited to twelve (12) for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Such identifications as can be given will be published, according to number, in the issues of the NEWS. Address packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

W. M. HILL.—1., *Sphenophorus 13-punctatus;* 2, *Hister interruptus;* 3, *Elater rubricollis;* 4, *Gastrophysa cyanea;* 5, *Chrysopila thoracica;* 6, *Languria mozardi;* 7, *Megilla maculata;* 8, *Chlænius æstivus;* 9, *Lebia grandis;* 10, 11, *Chauliangnathus marginatus;* 12, *Chalænius tormentosus.*

W. LOEWENSTEIN, JR.—1, *Passalus cornutus;* 2, *Necrophorus americanus;* 3, *Calosoma Willcoxi;* 4, *Nyctobates pennsylvanicus;* 5, *Megalodacne fasciata;* 6, *Tenebrio tenebrioides;* 7, *Cucujus clavipes;* 8, *Catogenus rufus;* 9, *Chalænius sotitarius;* 10, *Harpalus caliginosus;* 11, *Diplochila major;* 12, *Dicælus elongatus.*

Entomological Literature.

BULLETIN FROM THE LABRATORIES OF NATURAL HISTORY OF THE STATE UNIVERSITY OF IOWA contains: A Monograph of the Pselaphidæ of North America, by E. Brendel, M.D., and H. F. Wickham, vol. i, Nos. 3 and 4, June, 1890; 88 pages and 4 plates, 77 figs. Such works as these are very important, and greatly facilitate study. The authors say: "In preparing this monograph we hope to aid students of this large and interesting family, by sufficiently minute descriptions and synoptical tables, to recognize any species known to the fauna of the United States and British America, and to see the affinities of American species to the members of this family in other lands."

CONTRIBUTIONS TOWARD A MONOGRAPH OF THE NOCTUIDÆ OF TEMPERATE NORTH AMERICA.—Revision of some Tæniocampid Genera by John B. Smith. From Proc. U. S. National Museum vol. xii, pp. 455–496. A comparative table of genera is given, and the genera and species described. Two plates and two figs. are given, showing the genital structure of the TÆNIOCAMPINÆ.

PROCEEDINGS OF THE BOSTON SOCIETY OF NATURAL HISTORY, vol. xxiv, p. 482. The Life-history of *Drepana arcuata*, with remarks on certain structural features of the larva and on the supposed dimorphism of *Drepana arcuata* and *Dryopteris rosea* by Alpheus S. Packard.

BULLETIN AGRICULTURAL EXPERIMENT STATION OF NEBRASKA, vol. iii, art. 2. Insects Injurious to Young Trees on Tree Claims, by Lawrence Bruner, pp. 141. This essay is largely illustrated, and gives a history of the more important insects injurious to trees.

Transactions Kansas Academy of Science, vol. xiii, pt. 1, 1889, p. 15. Note on the Oviposition of a Wood Borer (*Tragidion fulvipenne*) by Prof. E. A. Popenoe, p. 34. Experiments for the Artificial Dissemination of a Contagious Disease among Chinch-bugs, by Prof. F. H. Snow. Some Notes on the Mallophaga by Vernon L. Kellogg.

Proceedings and Transactions of the Natural History Society of Glasgow, vol. ii, pt. 2. Parthenogenesis in Hymenoptera by P. Cameron. A Contribution towards a Neuropterous Fauna of Ireland by James J. F. X. King.

Maryland Academy of Sciences, 1890, pp. 73–88. Observations of North American Capsidæ, with descriptions of new species, by P. R. Uhler. *Ectopiocerus*, new genus; *E. anthracinus*, n. sp.; *Teleorhinus*, new genus; *T. cyaneus*, n. sp.; *Closterocoris*, new genus; *C. ornata*, n. sp.; *Coquillettia*, new genus; *C. insignis*, n. sp.; *Xenetus regalis*, n. sp.; *X. scutellatus*, n. sp.; *Rhinocaspis*, new genus; *R. Van Duzeii*, n. sp.; *Mimoceps*, new genus; *M. insignis*, n. sp.; *M. gracilis*, n. sp.; *Macrotylus regalis*, n. sp.; *M. tristis*, n. sp.; *M. vestitus*, n. sp.

Icones Ornithopterorum.—A Monograph of the Rhopalocerous Genus Ornithoptera, pt. 2. This contains figures, descriptions, etc., of *O. richmondia*, *O. Plateni* and *Brookeana*. We regret to see this subgenus cut up into subgenera. When in time we have a genus for every species we can conveniently drop generic names.

The Entomologist, London, July, 1890.—Coleoptera collected by Mr. Pratt on the Upper Yang-Tsze, and on the borders of Tibet, by H. W. Bates. Descriptions of new species of Phytophagous Coleoptera received from Chang-Yang, China, by Martin Jacoby. Contributions to the Chemistry of Insect Colors, by F. H. Perry Coste. Two days' collecting in Normandy, by John Henry Leech. Contributions to the Entomology of the Portsmouth District, by W. T. Pearce. A successful Moth-trap, by W. M. Christy. Entomological Notes, Captures, etc. Doings of Societies.

Bulletin of the Ohio Agricultural Experiment Station, vol. i, No. 1, 1889.—Preparatory Stages of the 20-spotted Lady bird. Studies in Pond Life. 1st, On the Life-history of *Arzama obliquata;* 2d, On the Life-history of *Chauliodes rastricornis;* 3d; On the Life-history of *Listronotus latiusculus;* 4th, On the Feeding-habits of *Zaitha fluminea;* 5th, On the Feeding-habits of *Notonecta undulata;* 6th, On Aquatic Leaf beetle (*Donacia subtilis*); 7th, An Aquatic Lady-bird (*Hippodamia 13-punctata*); 8th, On the Eggs of the Giant Water Bugs (*Belostoma americanum* and *Benacus griseus*). A Partial Bibliography of Insects Affecting Clover, by Clarence M. Weed.

Proceedings of the Zoological Society of London, pt. 4, 1889.—On new Indian Lepidoptera, chiefly Heterocera, by Col. C. Swinhoe. On the Lepidoptera of Japan and Corea.—Part 3, Heterocera, Sect. 2, Noctues and Deltoides, by J. H. Leech.

TRANSACTIONS, PROCEEDINGS AND REPORT OF THE ROYAL SOCIETY OF SOUTH AUSTRALIA, vol. xii, for 1888–89. Description of a new genus and species (*Hectoria pontoni*) of Locustidæ, by J. G. O. Tepper. Further Notes on Australian COLEOPTERA, with descriptions of New Species, by Rev. T. Blackburn.

ENTOMOLOGISCHE NACHRICHTEN, vol. xvi, 10, May, 1890.—Studies on Ichneumonidæ,* by Dr. Kriechbaumer; *Ischnogaster* n. gen.

NATURALISTE CANADIEN, May, 1890.—HEMIPTERA-HOMOPTERA of Quebec; Fam. Tettigonidæ, with 1 plate and Additions and Corrections; *Deltocephalus superbus*, *D. chlamidatus*, *Thyphlocyba unica* n. sp.

NATURALISTE CANADIEN, June, 1890, gives a list of insects from the Madeleine Isles, including the following new species: *Anax maritimus* (no description), *Ichneumon magdalensis*, *Glypta tricincta*, *Eubadizon basilare*.

COMPTES-RENDUS DES SEANCES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, April 5, 1890.—Ethiopian Rhynchota,* by W. L. Distant. *Sandehana* n. gen.

COMPTE RENDU, SOCIETE ENTOMOLOGIQUE DE BELGIQUE, June 7, 1890. —Aenictus–Typhlatta, discovered by M. Wroughton, New Genera of Formicidæ,* by A. Forel. New genera: *Huberia* (type *striata* Smith), *Triglyphothrix* (type *T. Walshi* n. sp.), *Trigonogaster* (type *T. recurvispinosus* n. sp.), *Emeryia* (type *E. Wroughtonii* n. sp.), *Ophthalmopone* (type *O. Berthoudi* n. sp.). The new species are from India and South Africa.

SPECIES DES HYMENOPTERES D'EUROPE ET D'ALGERIE, E. André, 36e fascicule, July 1, 1890, pp. 493–572, of vol. iv, 4 pls. Treats of the genera *Microplitis*, *Microgaster*, *Elasmosoma* and *Agathis*.

TIJDSCHRIFT VOOR ENTOMOLOGIE (Hague), xxxii, 3d Afl., 1889.—The spiral muscle and the vesicle of the palpi of male spiders, by A. W. M. Van Hasselt, 2 plates. Systematic and Synonymic Catalogue of the Neuroptera observed in the Low Countries and their borders, by H. Albarda. Some notes on Cidaria and other Lepidoptera, by P. C. T. Snellen.

ANNALES DE SCIENCES NATURELLES, 58e Annee, VIIe Serie, ix, 1.—Memoir on the venom and sting of the Bee, by Dr. G. Carlet, 1 pl. Zoological and anatomical monograph of the genus *Prosopistoma* Latr., by A. Vayssiere, 1 plate.

ARCHIV FUR MIKROSKOPISCHE ANATOMIE XXXV, heft 2.—The Development of the Wall Bee (*Chalicodoma muraria* Fabr.) in the Egg, by J. Carriere, 2 plates.

MEMOIRES DE LA SOCIETE ROYALE DES SCIENCES DE LIEGE, Series 2, xvi, April 1890.—Alphabetical Repertory of the specific names admitted or proposed in the subfamily Libellulinæ, with bibliographic, iconographic and geographic references, by A. P. de Borre.

* Contains new species other than North American.

A New Method of rearing the Silk Worm (*Bombyx mori* L.) on a herbaceous plant, by Dr. C. O. Harz, Stuttgart, 1890. The plant is *Scorzonera hispanica* L.

Doings of Societies.

Philadelphia, May 22, 1890.—A regular meeting of the Entomological Section of the Academy of Natural Sciences was held at the Hall S. W. cor. 19th and Race Streets. Meeting called to order at 8.20 o'clock. Mr. Martindale in the chair. Members present: Ridings, Cresson and Skinner. Associates: Calvert, Fox, Westcott, Seeber, Castle and Welles. Mr. Calvert stated that he had recently caught a male specimen of *Anomalagrion hastatum* Say, for which species he had been on the lookout for three Summers. It can readily be distinguished from all others by the anomalous shape of the pterostigma of the anterior wing, which is also separated from the anterior margin. The specimen was caught in Delaware County, Pa. Mr. Seeber exhibited specimens of the rare and pretty beetle, *Buprestis ultramarina*, which he had found near Red Bank, N. J.; also a specimen of *Belostoma americanum*. Mr. Martindale called attention to some cocoons of *Callosomia promethia*, which were found on Wild Cherry, and which were peculiar and interesting on account of their very small size. The cocoons had disclosed a pair of moths which were about one-third smaller than normal specimens. He discussed their possible relation to *angulifera*, and the full sized form of the species. Mr. Welles spoke of the habits of allied species in regard to the spinning of cocoons. Dr. Skinner described a caterpillar (unknown species) collected by Mrs. J. P. Ballard, at Easton, Pa. Mr. Blake thought it might be *Ceratomia amyntor*.

June 9, 1890.—Meeting called to order at 8.30 o'clock. Director Dr. G. H. Horn presiding. Members present: Martindale, Laurent, Ridings and Skinner. Associates: Calvert, Liebeck, Fox, Castle and Haimbach. The reports of the joint publication and the executive committees were read and received. The committee reported favorably on papers Nos. 237 and 238. Donations to the Library were read. Verbal communications being in order, Dr. Horn stated that he had lately been engaged on a study of the Eucneminæ of Mexico and southward, the results of which were to be published in the "Biologia Centrali Americana." They are very rare, and usually but few species represented in collections. Being so rare and difficult to study, very few have attempted it. He remarked, in addition, that he had twenty-four types of Bonvouloir and all but three or four of the forty-two species known, which latter number would probably be doubled. The meeting adjourned to meet on the fourth Thursday in September.

Henry Skinner,
Recorder.

ENTOMOLOGICAL SOCIETY OF WASHINGTON.—April 3, 1890. Mr. B. E. Fernow was elected an active member of the Society.

Mr. Fox read a paper on a small group of spiders forming the subgenus *Ceratinella* of the genus *Erigone*. The subgenus includes about seventeen species distinguished by the presence of a shield on the abdomen. All the specimens were collected east of the Alleghenies by Messrs. Marx and Fox, and were found fully developed at all seasons of the year. The paper was illustrated with drawings, and a collection of the spiders was shown. Discussion followed by Messrs. Marx and Fox.

Mr. Schwarz read a paper entitled "Labeling Specimens," in which he described the systems of labeling employed in the case of entomological collections; dealing particularly with the systematic collection of the specialist. The various labels employed were described, and examples of some of them were shown. The paper called forth considerable discussion, which was participated in by Messrs. Riley, Mann, Schwarz, Marx and Fox.

MAY 1, 1890.—The committee having in charge the preparation for publication of a list of the insect fauna of the District of Columbia, made a partial report, which was discussed at length.

The name of Mr. Townsend was added to the sub-committee on Diptera, and that of Mr. Marlatt to the sub-committee on Hymenoptera.

A revision of the sub-committees will be made at the next meeting.

Mr. Townsend read a list of eighty-seven species of Heteroptera collected by him in southern Michigan, with some brief notes and dates of occurrence. One species, *Corimelæna nitidulοides* Wolff, was taken in a nest of *Formica schaufussi* Mayr.

Mr. Townsend also presented a paper on "Some Insects affecting certain Forest Trees, mostly from Michigan," recording towards a hundred Coleoptera and a few of other orders, affecting either the foliage or the sound or decaying trunks of Oak, Hickory, Elm, Beech, Linden, Butternut, Ironwood (*Carpinus*), Willow, Hazel, etc.

These papers were discussed by Messrs. Schwarz and Riley.

Mr. Dodge read a paper on Artificial Silk, describing the Count de Chardonnet's method as exhibited at the late Paris Exposition of making from cellulose a substance closely resembling silk. A detailed account of the process of manufacture was given and illustrated with a figure of the device for producing the thread, and a sample of the silk was exhibited.

Discussions followed by Messrs. Philip Walker, Riley, Amory, Austin and others.

Mr. Marx presented some "Arachnological notes," in which he discussed the comparative anatomy of the spinning glands of spiders. The relation of those to the external spinning organs or spinnerets, and the importance of both in classification were explained. Careful drawings of the parts discussed were shown.

C. L. MARLATT,
Recording Secretary.

ENTOMOLOGICAL NEWS for June was mailed May 27, 1890.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

VOL. I. OCTOBER, 1890. No. 8.

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SOME EXPERIENCES IN LARVÆ REARING.

BY ROBERT BUNKER.

(Continued from page 110, vol. i.)

Occasionally we find a rare larva that has been stung by some saucy ichneumon fly, and if we can save it in the manner described on page 109, it will certainly be a great gain. Of course it must be done within a few days after the young worms have entered the body of their host, or it will be of no use. The inference to be drawn from this kind of treatment is that the chloroform penetrated the body of the larva and destroyed the young parasites, but was not in sufficient quantity to injure the larva.

Can the pupa of *Darapsa versicolor* remain under water two weeks without injury? The past two years I have bred this fine species from eggs found on the button bush (*Cephalanthus occidentalis*) and last year's catch of eggs was a surprise to me, because the low ground where the bushes grow was submerged for two weeks, and of course the pupa must have been under water that length of time, and yet when the proper time came around I found eggs. Some may say the eggs may have been laid by females that came from a distance, but that could hardly be, as the nearest bushes are six miles distant. Mr. Hulst has written

up the life-history of this species, so I will only add that the larva vary from a maroon-brown to a light green, are very domestic in their habits and extremely interesting. *Darapsa chlœrilus* differs from the foregoing in depositing its eggs. They are sometimes laid singly and sometimes *en-masse*, I once found twenty-two in a cluster on the Azalea (*Azalea nudiflora*).

Smerinthus myops varies principally in the number and color of the sub-dorsal spots; some have eight, four on each side, some six, more often four, and not unfrequently two, and one specimen, a regular unique, had but one spot, and that was situated on the right side of third segment. But the climax of all was a brood of nine I raised two years ago, which were destitute of spots. I examined them very carefully, and not a vestige of a spot could be seen. These immaculate specimens were light green without the bluish tinge characteristic of most of them. The diagonal lateral lines were very indistinct. When this unique group came out winged flies I found the sexes about equally divided, and was in hopes to get a pairing and thereby ascertain whether the larva would inherit the characteristics of their progenitors, but I failed. Another characteristic of all I have bred so far is the spots were cardinal or shumach-red, instead of rust-red.

In most cases the larvæ of a species varies far more than the imago, but in *Smerinthus geminatus* the reverse seems to be the order of things, and no doubt the food-plant has something to do with it; the eggs are found on willow and on poplar. The eggs found on poplar are larger than those found on willow; the imago is proportionally larger, the shading much deeper, and on the whole a much finer insect than the willow feeders.

Many more instances of marked varieties might be mentioned, but this paper is now longer than was at first intended, and I will close by a few remarks on the larva of *Smerinthus astylus*. Last Summer, after four hours' search on the high bush huckleberry (*Vaccinium corymbosum*) I found a young worm, half an inch long, of a bright green color. It moulted three times, but supposing the species had been described, I did not make a description of it till after the last moult, which runs as follows:

Larva bright green, 2¾ inch. long, ⅜ inch. diameter, uniform in size, with seven, oblique, lateral, red lines, margined with yellow on the under side; caudal horn black, base greenish yellow, nearly straight and smooth. Head with a pea-green stripe on the side; under side below the stigmatal spots sea-green, thickly studded

with very small, blue-black rings, extending the entire length of the body, and covering the upper as well as the lower part of the thorax; spiracles red.

It will be seen by the foregoing that my description differs very materially from that of Mr. Jones, and is either a marked variety or a distinct species.

———o———

ELEMENTARY ENTOMOLOGY.

Fourth Paper—The Movable Parts of the Head.

The antennæ or feelers, are jointed appendages inserted on the epicranium between or in front of the eyes. *Regular* antennæ have the joints of similar shape; *irregular* antennæ have the joints of dissimilar shape; intermediate forms of antennæ of course occur. Technical names are applied to the different forms of antennæ. Of regular antennæ the more common forms are:

Filiform (thread like), having the joints of uniform thickness, or nearly so.

Setiform or *setaceous* (bristle like), having the joints successively more and more slender from the base* of the antenna to its apex.

Subulate (awl shaped), similar to setaceous, but the transition from the thick basal joints to the slender joints is more abrupt.

Moniliform (necklace like) having the joints globular.

Serrate (saw like), having the joints triangular, arranged like the teeth of a saw.

Pectinate (comb like), each joint having a long process or projection on one side, the whole arranged like the teeth of a comb (fig. 2).

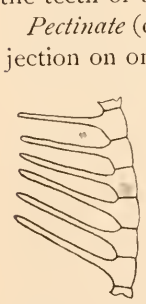

Fig. 2. Part of a pectinate antenna (*Chauliodes pectinicornis* L.).

Pinnate (feather like), each joint having one or more projections on each of two opposite sides, the whole looking like a feather.

Of irregular antennæ, the more common are:

Clavate (club shaped), having the apical joints somewhat more enlarged than the others.

Capitate (with a head, knobbed), having the terminal (apical) joints greatly enlarged to form a knob.

* The base of any limb or appendage is that part by which it is attached, directly or indirectly, to the trunk, the apex is the opposite end, farthest from the trunk.

Lamellate (plate like), having the terminal joints extended on one side into broad plates (figs. 3 and 4).

Fig. 3. A lamellate antenna (*Pleocoma Ricksecker*i Horn, male).

Fig. 4. A lamellate antenna (*Pleocoma hirticollis* Horn, female).

An irregular antenna may often be divided into portions of a varying number of joints. In such an antenna as that shown in fig. 5 the first or basal joint is the *scape*, the second joint is the *pedicel*, all the remaining joints compose the *clavola* or *flagellum*. The clavola may itself consist of several portions (fig. 6); its apical joints may be enlarged to form the *club;* its proximal* joints may be very short and small, and are then termed *ring-joints;* between the ring-joints and the club is the *funicle*.

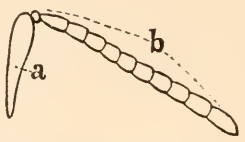

Fig. 5. An irregular antenna of a Hymenopter.
a, scape, followed by a small joint—the pedicel; *b*, clavola, of ten joints.

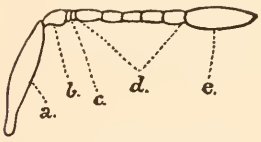

Fig. 6. Antenna of Chalcis fly.
a, scape; *b*, pedicel; *c*, two ring-joints; *d*, funicle of five joints; *e*, club; *c*, *d* and *e* together, form the clavola.

The mouth parts or *trophi*, differ to a very great extent in the various groups of insects, so much so that Fabricius, the celebrated entomologist of the last century, founded his classification of insects almost entirely on the modifications of the *trophi*. These modifications result from the nature of the food. Many insects living on liquids, such as the nectar and honey of flowers, suck up those liquids through a tube or proboscis. Others, feeding on animal or vegetable solids require hard cutting parts to tear those solids in pieces.

But however much these modifications existing in different insects may differ from each other, there is one general, typical form and arrangement of the mouth parts, to which all the modifications may be referred. This typical arrangement is as follows:

The mouth opening is situated between the front edges of the clypeus above and the gula below. Attached to the lower (front) part of the clypeus is the *labrum* or upper lip (*c*, fig. 1†; *d*, fig. 7). To the fore part of the gula is attached the *labium* or lower lip

* *Proximal* in treating of a limb or appendage refers to parts or joints nearest to the trunk as distinguished from *distal*, farthest from the trunk.

† Page 104 of this volume of ENTOMOLOGICAL NEWS.

(*e*, fig. 7). Between the labrum and the labium are two pairs of jaws whose normal movement is horizontal, not vertical, as in the backboned animals. The upper (dorsal) pair—nearest to the labrum—are the *mandibles* (*d*, fig. 1; *f*, fig. 7), the lower (ventral) pair are the *maxillæ* (*g*, *h*, *i*, fig. 7).

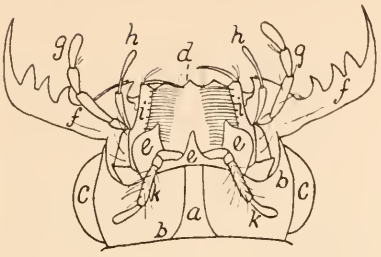

Fig. 7. Typical arrangement of mouth parts. Under side of head of Tiger-beetle (*Cicindela*).

a, gula; *b*, *b*, genæ; *c*, *c*, compound eyes; *d*, front margin of labrum; *e*, *e*, *e*, labium; *f*, mandible, showing four teeth; *g*, four-jointed maxillary palpus; *h*, two-jointed galea; *i*, lacinia; *k*, four-jointed labial palpus; *g*, *h* and *i*, are all parts of the maxilla.

Such a typical arrangement exists in the biting insects, as in beetles, crickets, grasshoppers, etc., and is shown in fig. 7.

The labrum usually consists of a single median piece, hinged by its hind or upper edge to the clypeus, by which it may sometimes be concealed.

Next below the labrum are the mandibles. Usually they are one-jointed, and have a cutting edge on the inner side. This cutting edge may either be entire, *i.e.*, unbroken, or toothed.

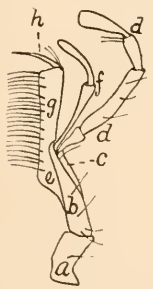

Fig. 8. Ventral side of left maxilla of Tiger-beetle (*Cicindela*).

a, cardo; *b*, stipes; *c*, palpifer; *d*, four-jointed maxillary palpus; *e*, subgalea; *f*, two-jointed galea; *g*, lacinia; *h*, digitus. The suture between the subgalea and the lacinia is obliterated. The figure gives the galea the appearance of being attached to the stipes; its real attachment is to the subgalea, as stated in the text.

On the ventral side of the mandibles are the maxillæ, which are usually very complicated. Each maxilla (fig. 8) consists of a number of joints. The basal joint is the *cardo* or *hinge*, the second is the *stipes* or *footstalk*. The *palpifer*, or *palpus-bearer*, is a joint situated on the outer side of the stipes; as its name indicates, it bears a conspicuous one- to six-jointed palp—the *maxillary palpus*. On the inner side of the stipes is another joint, the *subgalea*, or *helmet-bearer*. The subgalea bears two joints, the *galea*, or *helmet*, and the *lacinia*, or *blade*. The galea and lacinia are each directly attached to the subgalea. The galea is also called the *outer*, *upper*, or *superior lobe* of the maxilla, while the lacinia is the *inner*, or *inferior lobe* of the maxilla. The lacinia "is the cutting or chew-

ing part of the maxilla and is often furnished with teeth or spines;" sometimes it bears a terminal joint—the *digitus*. As often happens in the case of other appendages, the sutures separating contiguous joints of the maxilla become obliterated and the joints unite. In such cases the maxilla appears to be composed of a less number of joints than here described. Careful comparative study alone will show where such obliterations and unions have taken place in any one insect.

Unlike the labrum, the labium, or lower lip, is quite complex. It so much resembles the maxillæ as to have received the name of *second maxillæ*. The labium is to be regarded as a pair of appendages united to each other on the middle line of the body. A comparison of fig. 8 with the right side of fig. 9, will show the correspondence between a maxilla and half the labium, the homologous parts being lettered alike in the two figures. The basal joint of the labium is the *submentum*, which articulates with the gula; it is a single median piece and corresponds to the united cardos of the right and left maxillæ. The second joint, also a single median piece is the *mentum*,* corresponding to the united stipes of the right and left maxillæ. At each outer apical angle of the mentum is the *palpiger*, the homologue of the palpifer. The palpiger bears the *labial palpus*, whose similarity to the maxillary palpus cannot be mistaken. The joint marked *e* in fig. 9 is apparently unnamed; it corresponds to the subgalea, and bears two lobes, an inner (*g*) the *glossa*, and an outer (*f*) the *paraglossa*, corresponding to the lacinia and galea respectively. Excepting the submentum, mentum and labial palpi, all the remaining parts of the labium constitute the *ligula*. Few insects have the joints of the labium so distinct as the Black Cricket (fig. 9). Thus in the labium of the

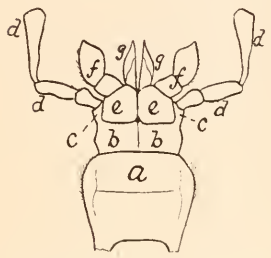

Fig. 9. Ventral side of labium of Black Cricket (*Gryllus*).

a, submentum; *b*, *b*, mentum; *c*, palpiger; *d*, three-jointed labial palpus; *e*, (unnamed, = subgalea); *f*, two-jointed paraglossa; *g*, glossa. The parts of the labium are here marked with the same letters as the corresponding parts in fig. 8. The mentum is one piece, but there is a line across it. The glossæ are not two-jointed, as the figure might seem to show, what looks like a terminal joint is a thin, membranous portion. The suture between each palpiger and mentum obliterated.

* Some confusion exists as to the use of the term *mentum*. By some it is applied to the part described above as the submentum, in which case that described above as the mentum receives the name of *hypoglottis*. We have followed Comstock and Packard in the text.

Tiger beetle (*e*, *e*, *e*, fig. 7) the sharp pointed middle piece (marked by the middle *e*) appears to represent the united glossæ and paraglossæ, if nothing more.

It is necessary to warn the student that great variation exists in different entomological writings, as to the names applied to the parts of the labium. The nomenclature which is here given is that of Comstock, with very slight modifications; it seems based on sound homologies with the parts of the maxillæ.

Within the cavity of the mouth may be two other organs, the *epipharynx* and the *hypopharynx*. The epipharynx is attached to the inner surface of the labrum, the hypopharynx to the inner surface of the labium; "both are rarely developed in the same insect. . . . The form and position of the hypopharynx" resemble "those of the tongue of higher animals. On this account it has been named the *lingua*, or tongue. But as both of these terms have been applied to the glossa* it is best to designate this part as the hypopharynx, and to avoid the use of the terms lingua and tongue, as liable to be ambiguous (Comstock)."

The foregoing description of the mouth parts is of that referred to above as the typical arrangement, and to be found in biting insects. In various modifications existing in sucking insects, some of the mouth parts may be represented only by bristles, or united to form a sheath. P. P. C.

A NEW APPLE PEST.

BY F. W. GODING, M.D., PH. D.

Empoasca birdii n. sp.—Seen from above long ovate, bright yellow, varying to green; abdomen deeper yellow and attenuated at the extremity. Head length of pronotum, obtusely rounded in front and convex; eyes purple-black; ocelli nearer the eyes than each other; three pale bands passing along the occiput, one at the centre and one at the edge on each side along border of the eyes. Pronotum one and a half times length of scutellum, its posterior border straight, front arched; three large, pale spots on front edge, the mesial one being continuous with the corresponding band on the occiput. Scutellum large, triangular, depressed, having a pale green, broad band on posterior part; apex and base yellow, a dark spot occupying the disc. Abdominal joints gradually decreasing in size; pure yellow. Elytra slightly smoky, with a darker band passing across the centre. Wings hyaline and iridescent, in the former the terminal vein is at the margin, while in the latter has a membranous margin; lower part

* When the two glossæ alone are united into one median piece, this piece is often called the glossa.

of tibiæ and all of tarsi indigo-blue; femora with a row of strong spines. One specimen with all colors much deepened, and some minor differences, may prove to be distinct. Length about 2 mm.; 3 mm. to end of hemilyta; breadth one-third the length.

Described from many specimens. Taken in Illinois from leaves of apple, hop, walnut, bean, and some weeds. I regret to add another to the long list of apple pests, but I am compelled to do so from observations repeated during two seasons. The specimens were taken from May until after heavy frosts. Their injuries to the apple leaves were plainly to be seen, the leaves being discolored wherever a puncture had been made. An account of its injuries appears in the Lacon. (Illinois) "Fruit Grower" vol. i, p. 132, July, 1890. - p. 116

I take pleasure in dedicating this beautiful little species to my highly esteemed friend, Miss Emma Bird, who has greatly aided me in entomological work for several years.

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WHAT CAN IT BE?

BY MRS. JULIA P. BALLARD,
Easton, Pa.

On the 12th of September, 1889, a large "mulberry" colored caterpillar was given to me. Its food-plant was not known. It was very strong and very snappish. There were two pairs of spined horns, one pair on the third and one on the fourth ring, and a strong sharp-pointed spined horn at the end. His whole length was marked by diagonal lines of the same mulberry color, but of a darker shade. These radiated from the central line down his back just like the veinings of a leaf. He was fully three inches in length, quite as large as the caterpillar of the Royal Dryocampa (*C. regalis*). No food offered him proved satisfactory. He resented the slightest disturbance with a sudden, quick motion, jerking about as if in a fury of passion, but kept quite still if not disturbed. I at once recognized him as the same kind of caterpillar I once secured nearly ten years ago.

"I saw an immense caterpillar, as I was coming up the hill, fully three if not four inches long," said a friend coming in one hot June day.

"Why didn't you bring him along?" was the quick response.

"I had no box, and I dare not touch him."

Seeing me don my hat and take up a pencil and parasol, said: "You will not find him; he'll be sure to have gotten away,"

was the not too encouraging remark. But, with the exact locality given (which chanced to be a large stone horse-block at a gentleman's residence, some distance away, and which of course could suggest no food-plant for his meals), I started—and to reward faith and perseverance—he was found on the identical block, captured safely, although snappish at disturbance, and after being secured in his box prison was tempted by every imaginable kind of leaf to be obtained from garden or wood. Nothing would he touch, and of course he soon died without a sign. Had he then been placed upon earth he would probably have "gone down" and become a chrysalis in his own way. At any rate, acting on this thought, the one secured last September was placed on a box of earth and was soon lost to sight, going down on the next day (September 13th). On September 18th, rolling back the earth, I found a fine large chrysalis with an unusual tinge of red in the brown. The rings were formed by two or three narrow and somewhat constricted rings; the chrysalis was broadest in the middle, and tapering to a sharp point at the end. The head has a pinched look and markings, which, as hasty dashes, give the effect of a face, two eye dashes and a horizon mouth line. From that day of September until now (April 13, 1890) he has lain so still that, but for an occasional tremor and a very occasional jerk when slightly touched, one would have said there was surely no life there. But he has moved to-day, and now all one can do by way of satisfying his curiosity is to wait a development, which cannot be far off. A line hinting of a crack down the centre of the front of the head shows where the chrysalis will break, and it is exactly like that of the Imperial Dryocampa (*E. imperialis*).

On April 21st the chrysalis responded to raps upon the box every time (and for the first time) as I have often had the Polyphemus chrysalis do by a rapid movement of the end of its body which shows me it is nearing the time of its change to the imago. Through all the past months it has lain as still as if dead, with a very occasional exception of a slight movement when touched. Ordinarily it made no response to this, and tried one's faith as to any latent life as much as the chrysalis of the Royal Walnut (*C. regalis*) does.

NOTE.—It was suggested that this might be *Ceratomia amyntor*, the four-horned sphinx, but Mrs. Ballard has reared *amyntor*, and the unknown cannot be it.—ED.

A NEW FORM OF CABINET FOR BUTTERFLIES.

BY ISAAC C. MARTINDALE.

Having just had completed a new cabinet, which gives such good satisfaction, I am prompted to acquaint the readers of the NEWS with the manner of its construction, and its many advantages, as it is the best form I have yet seen for easy examination, study, or comparison of specimens. The case is of Walnut, and is made in two sections (thus being more portable), one fitting on top of the other, the upper having sixteen drawers and the lower one twenty-four, each drawer being 24 inches wide by 20 inches deep, and of sufficient height to admit of the use of any ordinary pin. Each drawer has also its separate compartment, this I have found much better than where they slide on runners; the drawers being all interchangeable, admit of any change of location, which so often is found necessary where one's collection is constantly receiving new accessions.

The especial feature is the drawer itself, which, instead of having a cork bottom as is usually the case, has both the top and bottom of glass; the top part of the drawer frame fits tightly over a ledge one inch in height, effectually preventing the intrusion of destructive insects, the pest of the entomologist, but it is readily lifted when it is desirable to add to the contents, or change the location of the specimens. For the inside arrangement I have taken a strip of common tin, one inch wide, and turned up each side five-sixteenths of an inch, thus leaving three-eighths of an inch for the bottom, the length of the strip of tin being about two inches longer than the width of the drawer admits of each end being turned up one inch; into this tin trough is tightly fitted a cork strip three-eighths of an inch square, the whole being covered with white paper, such as is usually used for lining drawers, conceals the inequalities of the cork, and makes a fine finish; they should be made to fit neatly in the drawer, and can be readily moved about to suit large or small specimens; for *Lycænas*, *Pamphilas*, etc., as many as fifteen of these strips may be used in one drawer, and as few as five for *Morphos*, *Caligos*, etc. The upturned ends are fastened in place by using the ordinary thumb tacks that can be procured at any stationer's; the frame work of the drawers should be of White Pine, well seasoned; into this the thumb tacks are readily inserted and as easily withdrawn when a change in the position of the cork strips is needed.

The superiority of this form of case for butterflies will be readily perceived, as the upper and under surface of the wings can be seen by simply turning the drawer without touching the insect, and there is no danger of breaking or injuring specimens. The cost of the case is no greater than if made in the old style.

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COLLECTING IN THE WILDS OF PENNSYLVANIA.

BY CHARLES A. BLAKE.

During the latter part of last July, being up in Tioga County and having a day to spare, I concluded to try that section entomologically, so, early in the morning, got my traps together and found a *native* who agreed to take me in his buggy, in which we rode to a wild spot not far from Niles Valley, and about the roughest ride I ever experienced. We halted close to a deep ravine which looked promising, and climbing down among the rocks, which here are of gigantic proportions, began my survey. The rock formation I thought belonged to the *Laurent*ian group, but not being geologist enough to determine that point with certainty, mentioned it to Prof. Heilprin on my return, who soon satisfied me that my speculations were wrong.

Passing through the ravine I came upon a beautiful little valley, which the before-mentioned native said was called *Martin dale*, on account of the vast number of swallows that congregate there, and from appearances should judge it was a paradise for the botanist. At the northern end there was a small sheet of water called Chu*b Lake*, where I captured several species of hymenoptera among the water*cress on* the shore. Not far from the edge of the water I noticed a snake-*skin ner*vously twitching, and on investigating matters, found it contained several specimens of Necrophorus americana, Silpha americana and a species of Dermestes, which I bottled. Among the débris on the shore was a curious specimen of Xyloryctes satyrus, in which the *horn* was curved forward, but I unfortunately lost it.

In a dense *wood* on the opposite side of the lake there were ant hills and ants enough to satisfy even Dr. McCook had he been there. While examining the trees for Catocalæ five or six species occurred, among them C. relicta. In this wood I noticed a large number of Libellulidæ, apparently flying around a blue*jay nes*ting in a tall *Pine* tree, and I nearly dislocated my cervi*cal vert*ebræ

looking up to see what all the commotion was about. The jay appeared greatly agitated by the insects, and kept up a constant flutter and chatting. As it appears a *well es*tablished fact that the bluejay is not a strictly insectivorous bird, I could not account for its actions. Thinking to drive her from the nest I threw a stone at it, missed of course, but brought down a mass of yellow fungus that was full of Megalodacne heros, several of which I bottled.

In the neighborhood of the lake I captured specimens of Vanessa milberti, Feniseca tarquinius, Grapta J-album and Alypia octomaculata. I have never seen birds so abundant as they were in this valley, one I s*lew is* a Chordeiles virginianus, the nighthawk, the skin of which is now in my collection. The craw was literally stuffed with coleoptera, showing it was a better collector than myself.

As I had had a good day's collecting we took to our buggy again; after *riding s*ome distance a bolt broke, on account of the nice road spoken of above, and for a moment it looked as though I should lose the result of my trip, but we fortunately found a *smith* who soon put us in good shape, so that I arrived home in time for supper, and quite satisfied with my success.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

PAMPHILA AARONI was found in abundance at Cape May last month by Mr. Witmer Stone. *C. eubule* was also found.

SOMETIMES at least a quart of mosquitos could have been gathered from under each electric light on Congress Hall porch, Cape May, N. J.

POMPILUS ÆTHIOPS Cress., was seen at Westville, N. J., carrying away a species of *Trochosa* which it had evidently just captured and killed, as the spider was bright and perfect. Wasp and spider were both bottled.

A NATURALIST observes, admiringly, "There is a butterfly, one of the world's 12,000 species, the tiny eye of which contains 17,000 facets." This will explain to small boys why the butterfly is such an expert in dodging a hat.

Prof. E. W. Doran recently resigned the office of State Entomologist of Tennessee, which he had held for five years, having recently removed to Missouri. During his incumbency he furnished two reports and a catalogue of the insects of the State. Dr. F. W. Goding.

Mr. W. H. Ashmead intended to sail for Europe on September 3d, steamer "Munchen," to be abroad two years. He hoped to visit the large collections of the continent and pay especial attention to parasitic Hymenoptera; also expected to visit Italy and make some studies on orange insects.

I lately reared seven specimens of the larvæ of *Terias nicippe* to the chrysalis state. Five of the chrysalids were of the normal green color, and two were black. Mr. Scudder calls attention to the same occurrence in his book on the "Butterflies of the Eastern United States." His specimens disclosed the normal form of fly. H. Skinner.

The last of the MSS. for part 1 of the new "Handbook of the Destructive Insects of Victoria" with 13 colored plates has been handed to the government printer, and the work was to have been completed by the end of July. The prospectus has just been issued of a new book entitled, "A Manual of New Zealand Entomology," by Mr. Geo. Vernon Hudson, Fellow of the Entomological Society of London, of Wellington, New Zealand. The work will consist of about 150 pages, and will cotain 20 colored plates, illustrating over 100 species of typical New Zealand insects.

Mr. C. W. Johnson took a specimen of *Neonympha Mitchellii* at Dover, Morris Co., N. J. It agrees exactly with specimens of *Mitchellii* in the collection of the American Entomological Society received from Prof. Mitchell. *N. Mitchellii* was described by Prof. French in the Canadian Entomologist for February, 1889, p. 25. The types came from Cass Co., Michigan, and were found in upland dry meadows. The country around Dover, N. J., is rocky and hilly. It seems remarkable that this species has not been noticed before if it is at all plentiful, and also more remarkable that the first additional locality should be so far away from the original. Mr. Johnson's specimen was caught July 10, 1890. H. Skinner.

I was pleased to read in Entomological News the article about baiting insects with sugar, molasses, or other sweets. I have followed the advice given in the Lepidopterist's Calendar, London, 1875. It is to mix two tablespoonfuls of new rum with one pint of molasses. The rum gives flavor, and is, I suppose, more diffusible than saccharine matter alone, and will no doubt serve as a night-cap to Rhopalocera, and as an eye-opener to Heterocera. You will notice many Lepidoptera feeding on over-ripe fruit in which vinous fermentation has commenced. During this process much alcohol and œnanthic ether is given off, attracting butterflies, etc. Under fruit trees, with the ground covered with decaying cherries, mulberries, pears, etc., you will find many, such as *Limenitis*, *Papilio*, *Grapta* and others, and to me it seems that they resort to fruit-bearing trees and bushes for their "toddy." Dr. Richard Kunze.

COLIAS PHILODICE, var. *alba*.—I notice that the foot-note on p. 93, vol. 1, states that if the genitalia of my white *philodice* were examined it would probably be found to be a female. This I will venture to say was done the day it was captured, and it is a male without a doubt. I have forty specimens of *C. philodice* in my collection, including some very rare forms, but this white male seems the oddest of all. One pair (females) are of a pale lemon-yellow, and in some respects resemble the Swedish males of *C. palæno*; also yellow females without the submarginal rows of yellow spots on the upper side. Some females that are suffused with black and on the under side have a smoky-orange cast. Among the males I have a specimen that has the black border very narrow on the primaries and almost obsolete on the secondaries; this I think is var. *anthyale* of Hüb. This latter form I generally take among the Spring brood when I also find the very small specimens which seldom appear later in the season.

GEO. A. EHRMAN.

WHILE walking along the edge of a mountain stream I was surprised to see one of these butterflies (*Papilio macleyanus*) alight close to the water, into which it backed till the whole of the body and the lower part of the hind wings were submerged, the two forelegs alone retaining their hold of the dry land. After remaining in this position for something like half a minute it flew away, apparently refreshed. During the morning I noticed quite a number doing the same thing. In one instance no less than four were to be seen within a space of not more three yards, and to make sure that I was not deceived I captured several as they rose from the water, and found in each case the body and lower edge of the hind wings quite wet. While in the water the fluttering of the wings, so noticeable at other times, was suspended, and so intent were the butterflies in the enjoyment of their cold bath that they would hardly move, even when actually touched by the net. Apparently the heat of the weather drove them down to the water, as immediately they emerged they flew up again to the hillsides (GEO. LYELL, in the "Victorian Naturalist" for June, '90).

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be limited to twelve (12) for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Such identifications as can be given will be published, according to number, in the issues of the NEWS. Address packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

EUGENE R. FISCHER.—1, *Catocala amatrix;* 2, *Cybister fimbriolatus;* 3, *Ligyrus relictus;* 4, *Argiope cophinaria;* 5, *Spilosoma virginica;* 6, *Lygus pratensis;* 7, *Lopidea medea?;* 8, *Scarites substriatus.*

W. M. HILL.—1, *Tetraopes tetraophthalmus;* 2, *Silpha inæqualis;* 3, *Attelabus analis;* 4, *Geotrupes Balyi;* 5, *Trichius piger;* 6, *Canthon lævis;* 7, *Calopteron reticulatum;* 8, *Lachnosterna gibbosa;* 9, *Epicauta cinerea;* 10, *Epicauta strigosa;* 11, *Dineutes sp.?*

Entomological Literature.

Second Annual Report of the Experiment Station Kansas State Agricultural College, p. 206. Some Insects Inj. to the Bean.

Journal of the Asiatic Society of Bengal, vol. lviii, pt. 2, Suppl. No. 1.—Catalogue of the Insecta of the Oriental region, No. 1. Order Coleoptera, Family Cicindelidæ, by E. T. Atkinson. Catalogue of Insecta 2. Order Rhynchota, Sub-order Hemiptera-Heteroptera. Family Capsidæ, by E. T. Atkinson, with bibliographical table, etc., 174 pp. This is an important paper to American students, as it includes the species of the world, vol. lviii, pt. 2, No. 4, 1889. On Certain Lycænidæ from Lower Tenasserim, by William Doherty, Cincinnati, U. S. A., pp. 31, pl. 1. A number of new species are described.

Zeitschrift fur Wissenschaftliche Zoologie xlix, heft 4, 1890.—The eye of Caterpillars and Phryganid larvæ, by O. Pankrath, 2 plates.

Zoologischer Anzeiger, 19 May and 2 June, 1890.—Analytical Chemical Researches on living caterpillars, pupæ and butterflies, and on their secretions, by F. Urech.

The Victorian Naturalist June, 1890.—Some Notes on the Transformations of Australian Lepidoptera, by Hy. Edwards.

Transactions and Proceedings of the New Zealand Institute, vol. xxii, 1889.—Further notes on Coccididæ, with descriptions of new species from Australia, Fiji and New Zealand, by W. M. Maskell. On some species of Psyllidæ in New Zealand, by W. M. Maskell. On some Aleurodidæ from New Zealand and Fiji, by W. M. Maskell. An entomological tour on the table-land of Mt. Arthur, by G. V. Hudson. *Eristalis tenax* and *Musca vomitoria* in New Zealand, by G. V. Hudson. Descriptions of New Zealand Lepidoptera, by E. Meyrick. Notes on a collection of Pselaphaidæ from the neighborhood of Clevedon, southern Wairoa, by Capt. T. Brown. Description of a new species of *Argiope* from Fiji, by A. T. Urquhart. On two species of *Aranea* new to science from the Jenolan Caves, New South Wales, by A. T. Urquhart. Description of new species of Araneidæ, by A. T. Urquhart. Description of new species of New Zealand Araneæ with notes on their habits, by P. Goyen. On the occurrence of the Black Vine-weevil (*Otiorhynchus sulcatus*) in Nelson, by R. I. Kingsley.

Journal of the Bombay Natural History Society, vol. v, No. 1.—The Butterflies of the Central Provinces, by J. A. B. A Preliminary List of the Butterflies of Mysore, by E. Y. Watson. Notes on Indian Ants, by George Alexander. J. Rothney. vol. v, No. 2. Description of a new Morphid Butterfly from Northeastern India, by Lionel de Niceville. Butterflies of the Central Provinces, by J. A. Betham (continued).

A Monograph of Oriental Cicadidæ, by W. L. Distant. Part 3, pp. 49–72. With two plates. June, 1890. Contains descriptions and figures of species of *Cosmopsaltria* and *Pomponis*.

The Victorian Naturalist, July, 1890.—Notes on the Geographical Distribution of some Australian Buprestidæ, Pt. 1, by C. French.

Catalogue of Insects found in New Jersey, by John B. Smith. From the Final Report of the State Geologist, vol. 11. This makes a large volume of 486 pages and covers all the orders. The catalogue has been compiled from all available sources, and names of species not actually recorded from the State, but supposed to be found there are inserted. It is an open question whether this should have been done; 6098 species are listed, Coleoptera coming first, with 2227; Lepidoptera next, with 1140, and Hymenoptera third, with 1074. The other orders have comparatively fewer species recorded, not because they do not exist in the State, but because they have not received the attention they deserve from entomologists. The list can't fail to be useful to both the field worker and the systematist.

Contribution Toward a Monograph of the Insects of the Lepidopterous Family Noctuidæ of Temperate North America.—Revision of the species of the genus Agrotis, by John B. Smith. The above is Bulletin No. 38, United States National Museum, 231 pages, 5 plates, 83 figures. The old genus Agrotis is divided into sixteen genera and many of these subdivided into convenient groups. Descriptions of the species with habitat and notes are given and a number of new ones described.

Biologia Centrali-Americana. Part 86, June, 1890.—Arachnida-Acaridea, by Otto Stoll (pl. xv, Coleoptera, vol. ii, pt. 1, by D. Sharp (pl. 10), vol. iv, pt. 2, by G. C. Champion (pp. 161–184); vol. vi, pt. supplement, by M. Jacoby (pp. 185–200); Hymenoptera, vol. ii, by P. Cameron (pp. 89-96, pl. 6); Lepidoptera-Heterocera, vol. i, by H. Druce (417-424); Diptera, vol. ii, by F. M. van der Wulp (pp. 145–176, pl. 4).

The Colors of Animals, their Meaning and Use, Especially Considered in the case of Insects, by Edward Bagnall Poulton, M.A., F.R.S. International Scientific Series, by D. Appleton & Co., New York, 339 pages, illustrated. This is a very interesting work to the entomologist, and should be in every library. Some of the subjects treated are the Physical Cause of Animal Colors, Protective Resemblance, Dimorphism, Warning Colors, Protective Mimicry, Sexual Coloring, etc.

American Spiders and their Spinning-work.—A Natural History of the Orbweaving Spiders of the United States with Special Regard to their Industry and Habits, by Henry C. McCook, D.D., vol. ii. This fine volume is handsomely illustrated with five colored plates and 401 cuts, and consists of 469 pages. Dr. McCook is to be congratulated on this grand addition to spider literature.

The Entomologist, September, 1890.—Additions to the British List of Deltoids, Pyralides and Crambi, since 1859 (with plates), by Richard South. Notes on some species of Gall-gnats (Cecidomyiæ), by T. D. A. Cockerell. Contributions to the Chemistry of Insect Colors, by T. H. Perry Coste. An addition to the Plusiidæ of Britain, by R. South. Five Days' Collecting in Normandy, by J. H. Leech. Entomological Notes, Captures, etc. Doings of Societies.

Second Annual Report of the South Carolina Experiment Stations for 1889. Ten pages are devoted to Entomology, by Ellison A. Smyth, Jr., botanist and entomologist.

Verhandlungen der K. K. zool.-bot. Gesellschaft in Wien, xl, 2 Quartal, June, 1890. On the connecting links between the orthorraphic and cyclorrhaphic Diptera and those between Syrphidæ and Muscariæ, by Dr. Fr. Brauer. On Lorrainian Gall Flies,* by J. J. Kieffer. Explanation of J. C. Savigny's plates of Orthoptera in the "Description de l'Egypte," by Dr. H. Krauss. On the adaptation of the colors of butterflies and caterpillars to their surroundings, and on the character of the Lepidopterous fauna of the Kilima-Ndjaro district in East Africa, by A. Rogenhofer, etc.

Compt. Rendu. Societe Entomologique de Belgique, July 5, 1890. —Causeries Odonatologiques, by E. de Selys-Longchamps; reviews Dr. Hagen's recent synopses of *Calopteryx* and *Anax*, with a note on some of the American *Mecistogasters*. A new type of underground Prionid, by A. Lameere; *Geoprionus* n. gen., type *G. syntheticus* n. sp., Rio Brazil.

Verhandlungen des Naturforschenden Vereines in Brunn, xxvii, 1888 (Brünn, 1889).—The Lepidoptera of the Achal-Tekke District, by H. Th. Christoph; a bibliographical and geographical list of the species from this district of Turkestan. Identification of the European Coleoptera. Family Phalacridæ,* by C. Flach, 1 pl. An entomological excursion from Brünn to the borders of Transylvania in June, 1888, by Dr. A. Fleischer, with a list of Coleoptera* then collected. Coleopterological Results (of the expedition in Transcaspia in 1886 and 1887, conducted by Dr. G. Radde, Dr. A. Walter and A. Konchin) by E. Reitter;* *Microjulistus*, *Colposcythis*, *Anidania*, *Adoxinia*, new genera.

Le Naturliste (Paris), Aug. 1 and other numbers, 1890. New lepidoptera from Ecuador are described by P. Dognin.

Anatomischer Anzeiger, July 19, 1890.—Is the Ommatidium a Hair-bearing sense Bud? by William Patten.

Bulletin de la Societe Philomathique de Paris, 8e serie, ii, 1890. Note on the lyriform organs of Arachnids. Note on the anatomical structure of the pecten of scorpions and the coxal *raquettes* of the Galeodæ. Note on the movement of the limbs and jointed hairs in the Arthropoda, by P. Gaubert.

* Contains new species other than North American.

Jahreshefte des Vereins fur vaterlandische Naturkunde in Wurtemberg, xlvi, 1890.—The fly *Teichomyza fusca* Marx., and The odor-producing apparatus in butterflies, by Dr. E. Hofmann.

Deutsche Entomologische Zeitung, 1890, heft 1.—Contains papers on the Coleoptera, describing many new species, but none from North America, except *Veturius sinuatocollis* Kuwert, Costa Rica. Some of the chief papers are some new Passalidæ A. Kuwert (*Paxilloides* n. gen.). New analytical synopsis of the genus *Omoplus* E. Reitter (*Omophlina*, *Heliosthræma* n. gen.). Analytical revision of the genus *Amphicoma* E. Reitter. New Coleoptera from Europa, the bordering countries and Siberia, with remarks on known species, by E. Reitter, etc.

Revue Biologique du Nord de la France, August, 1890.—Notes on the Thysanoura, iii. On some new, or little known species collected at Croisic, by R. Moniez.

Atti della Societa Italiana di Scienze Naturali, xxxii, Milan, 1889.—Study on the structure and function of the organs adhering to the tarsi of Coleoptera, by P. Paolo, 4 plates.

Compte Rendu. Societe Entomologique de Belgique, Aug. 2, 1890. —On the unity of origin of the Arthropod Type, by A. Lameere.

Zoologischer Anzeiger, Aug. 4. 1890.—On the developmental history of *Platygaster instricator* L. (*femorator* Dalm.) by N. Kulagin.

Zoologische Jahrbucher, v, heft 2, 1890.—General Biology of Butterflies, by Dr. A. Seitz; the first part only is published now, and treats of the geographical distribution of butterflies and their dependence on climatic influences. Contribution to the knowledge of the West African Orthoptera,* by Dr. H. Krauss, 1 pl.

Compte Rendu. Congres International de Zoologie a Paris, 1889-1890.—On the artificial importation of parasites and natural enemies of noxious insects in vegetation, by C. V. Riley.

Actes de la Societe Linneenne de Bordeaux, xlii.—Study on the species of Aviculariдæ which inhabit the north of Africa.* Revision of the Aviculariдæ of the republic of Ecuador.* Descriptions of new African species of the family Aviculariдæ,* by E. Simon. A number of new genera are characterized in these three papers.

Bulletin de la Societe d'Etudes Scientifiques d'Angers. New series, xviii. Catalogue of the Coleoptera of Maine-et-Loire, 2d part, by M. Gallois.

Nouvelles Archives du Museum d'Histoire Naturelle, 3d series, i, fasc. 1-17, 18 36. Paris, 1889. Researches on the insects of Patagonia, collected by the In. expedition sent to observe the transit of Venus at Santa Cruz, Patagonia, in 1882, by E. Lebrun, L. Fairmaire and P. Mabille. Includes the Coleoptera and Lepidoptera, 3 plates.

* Contains new species other than North American.

Societe d'Histoire Naturelle de Toulouse, xxiii, 1889.—Materials contributing to the entomological fauna of the south of France—Hemiptera, by M. Marquet.

Termeszetrajzi Fuzetek (Budapest), xiii, 1890.—Contributions to the distributions of Galls, with particular regard to the neighborhood of Budapest, v, Szepligeti.

Zoologischer Anzeiger, Aug. 18, 1890.—On the hermaphroditic function of the Sexual Glands of the male of *Phyllodromia* (*Blatta* L.) *germanica*, by R. Heymons.

Entomologische Nachrichten, xvi, No. 14, July, 1890.—On Dimorphism and Mimicry in Butterflies, by L. Glaser.

No. 15, August, 1890.—New species of Apidæ, by A. Schletterer, mostly from Chili.

No. 16, August, 1890.—Three papers on the Coleopterous genus *Athous* and its allies,* by E. Reitter. *Elathous* n. gen.

Doings of Societies.

The Entomological Society of Washington, June 5, 1890.—Mr. Ashmead, under general notes, announced the discovery of a genus of Proctotrupidæ new to the United States. The insect *Iphitrachelus americanus* is interesting as furnishing a connecting form between the subfamilies Ceraphroninæ and Platygasterinæ.

Mr. Schwarz exhibited a specimen of *Throscus pugnax*, which species is new to the fauna of the District.

Prof. Riley presented a paper "On the Difficulty of dealing with Lachnosterna," in which he described the attacks of those beetles on certain large trees, especially Chestnut and Swamp Oak, having a height of about thirty feet which had been transplanted to his grounds last February. The successive appearance and work of the several species of Lachnosterna were described and the experiments with remedies detailed. The latter consisted in spraying with strong whale oil and tobacco soap solution, and later with London Purple at the rates of one pound to 125 gallons of water. The applications were satisfactorily made, but proved ineffective. The first did not prevent the attacks of the beetles at all, and while the second resulted in the poisoning of many of the beetles as indicated by the finding of dead ones on the ground, it was of little value in limiting the onslaught. Prof. Riley deduced from his experiments that it was practically impossible to protect large trees from Lachnosterna. It was shown also that the beetles came from the ground near the trees, and appear to have a predilection for newly transplanted trees. The injury consisted in the gnawing off of the leaves at the base of the petiole.

* Contains new species other than North American.

The paper was discussed by Messrs. Fernow, Riley, Schwarz, Howard and Mann.

In a paper entitled "Notes on Xyleborus," Mr. Schwarz commented upon the discovery of a wild food-plant of *Xyleborus dispar* (*pyri*). This Scolytid had been found quite recently in the vicinity boring and ovipositing in young shoots of *Liriodendron tulipiferum*. In the same branches another species, *X. tachygraphus*, was discovered, and Mr. Schwarz exhibited and described its galleries. Discussion followed by Messrs. Riley, Schwarz, Ashmead and Fernow.

Mr. Howard read a paper entitled, "The Habits of Eurytoma," in which he called attention to the fact that heretofore the generally-surmised parasitic habit of the members of this genus had never been conclusively shown; and the close relationship of *Eurytoma* with the Phytophagic genus *Isosoma* would lead to the inference that the former might be, in part at least, inquilines and not true parasites. The following of a certain species from the larval stage to the pupal, in which they were at once recognized as a species of *Eurytoma*,* settled in one instance at least the question of larval habit. An Oak gall, *Cynips Quercus-prunus*, was found, on cutting it open May 17th, to contain six full grown parasitic larvæ, afterwards determined as given above, and the remains of a larva which they had nearly devoured.

The paper was discussed by Messrs. Riley, Howard and Ashmead.

C. L. MARLATT,
Recording Secretary.

DESCRIPTION OF THE LARVA OF GORTYNA NITELA GUEN. AND ITS VARIETY NEBRIS.—Length full grown 1¼ inches. Uniform pale honey-yellow. Head dark honey-yellow, shining, bearing a few scattered, erect hairs. Mouth parts and a small spot on cheeks castaneous. Dorsal surface of second segment pale brown, shining, shaded laterally with blackish brown. Feet and stigmata black; segments three to eleven each with four brownish gray spots on the dorsum, the anterior larger and closer together than the posterior; each spot bearing a single erect hair; the twelfth segment having four quadrate spots of the same color, larger than the rest. A brownish gray spot just behind each stigma. Posterior segment slightly rugose, dark honey-yellow, margined with brownish black; bases of anal prolegs pale brown. Feeds in the stems of the great rag weed (*Ambrosia trifida*) and burdock (*Arctium lappa*). The larvæ went down July 30th, and the imagos emerged August 28th.

Two broods raised this season by my friend, P. Stephens, Montgomery County, exhibit both forms about evenly divided.—C. A. B.

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* The imagos obtained later proved to be *Eurytoma prunicola* Walsh.

ENTOMOLOGICAL NEWS for September was mailed August 28, 1890.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

VOL. I. NOVEMBER, 1890. No. 9.

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Three new species of Aculeate Hymenoptera.

BY WILLIAM J. FOX.

Sphex (Isodontia) macrocephalus n. sp.

♀.—Black; head large, subquadrate, covered with long, erect, black hairs, sparsely punctured, more closely so on the face and clypeus; clypeus carinated; labrum and mandibles smooth and shining, the former rounded in front, with a slight pit on each side of the slight carina anteriorly. Thorax finely punctured, covered with long, erect, black hairs; disc with a distinct impressed line, extending from base to centre, scutellum not closely punctured; tegulæ smooth, impunctured; legs shining, posterior surface of hind tibiæ with sericeous pile. Wings blue-black, shining, the marginal cell with the tip obtuse, the third submarginal rounded at tip. Petiole finely, but not closely punctured; with long, erect hairs; the remaining segments of the abdomen smooth, shining, with a few scattered, punctured beneath, and last segment with a few scattered hairs. Length .80 inch.

One specimen. Collected in Fairmount Park, Philadelphia, Pa., during 1889.

Miscophus americanus n. sp.

♀.—Black; face, cheeks and thorax covered with silvery pile, very dense on the clypeus and sides of the thorax; head wider than the thorax, very finely and closely punctured, a distinct longitudinal impressed line, extending from lower ocellus almost to base of clypeus; clypeus divided into three parts, the latter rounded in front, the central part largest; thorax very finely punctured; the tegulæ slightly brownish, impunctured; metathorax with slightly heavier punctures, with a well defined, raised, central line extending from base to apex; legs sparsely covered with silvery pile, more dense on the tarsi; wings hyaline, the anterior pair with a darker apical margin iridescent; marginal cell rounded beneath, acuminate at tip, the second recurrent nervure received by the second submarginal cell near its apex; abdomen smooth and shining, very finely punctured, the apical margins of the first to fourth segment above with silvery pile, more dense laterally, beneath, the second and third segments with sparse, sericeous pile, more obvious on the posterior margins, venter with a few long, black hairs. Length .18 inch.

One specimen. Camden County, N. J., July 29, 1890.

This is the first species of this genus known to occur in North America, and should be placed in the Larridæ, after the genus *Pison*. It can be distinguished by possessing only two submarginal cells.

Photopsis Cressoni n. sp.

♂.—Black; clothed with long, erect, pale hair; head finely punctured; thorax distinctly punctured, much more strongly and deeper on the dorsulum and scutellum; metathorax with very large, deep punctures; subtruncate behind; wings fuscous, nearly hyaline at base, iridescent in certain lights, first recurrent nervure received by the second submarginal cell, between its base and middle, subcostal nervure incurved, so that it touches the costal nervure; nervures and stigma black, the latter and the costal and subcostal nervures very much so; abdomen shining, finely, but not closely punctured, the second segment contracted at apex, beneath the second segment is deeply punctured, the third to seventh ventral segments almost entirely smooth, polished. Length .25 inch.

One specimen, Camden County, N. J., Sept. 9, 1890.

This species is, I believe, the first known to have been captured in the eastern United States, and can be at once distinguished by its entirely black color. It belongs to Blake's Division II, having two submarginal cells, and the first segment of abdomen being nearly sessile with the second.

It gives me great pleasure to dedicate this species to Mr. E. T. Cresson, whose labors have done much to advance the study of the North American Hymenoptera.

———o———

OVIPOSITION OF ANOMALON sp.*

BY C. P. GILLETTE.

While passing an apple tree on August 18th, last, on which were a brood of *Datana ministra* larvæ about one-third grown, my attention was attracted by the presence of a large hymenopterous parasite busily ovipositing in their soft bodies, and, apparently, much to their discomfort. The parasite was a large black Anomalon sp. not in my collection, unless, possibly, it is a variety of *A. pallitarse* Cress. It differs from Cresson's description of this species by having its middle and hind pairs of legs black, and its face, antennæ and front pair of legs entirely yellow.

This parasite was so intent upon her work that she did not leave when I pulled the limb down close to my face so that I could distinctly watch operations. The entire brood of larvæ were apparently alarmed and were striking their heads violently from side to side to frighten away their enemy. The parasite stood upon a leaf in easy reach of a number of her victims watching their movements, and, as soon as one became quiet enough, she would quickly thrust it with her sharp ovipositor. The manner in which this was done was what especially interested me. I had supposed that these parasites would stand upon or above their victims and thrust down upon them, but such was not her manner. I was reminded of one who fences, and, with a quick thrust straight in front, pierces his combatant. This insect stood upon her two back pairs of legs, the front pair not being put to any

* Read before the Iowa Academy of Science, at Des Moines, Sept. 5, 1890.

use. The long abdomen was bent under the thorax and between the legs, and the thrusts were made straight in front of the face. As the abdomen was brought forward the short ovipositor pointed straight in front like the index finger. See illustration.

The larvæ when pierced did not drop to the ground, but threw their heads higher in the air and ejected a dark colored liquid. So far as I saw but one egg was deposited in each.

———o———

ELEMENTARY ENTOMOLOGY.

Fifth Paper.—The Thorax, the Legs.

The second region of an insect's (imago's) body is the thorax. To it are usually attached three pairs of legs and two pairs of wings. It is composed of three segments. The first segment, articulating with the occiput in front, is the *prothorax*, which bears the first pair of legs. The second segment is the *mesothorax*, bearing the second pair of legs and the first pair of wings. The third segment is the *metathorax*, bearing the third pair of legs and the second pair of wings.

Typically, each segment of the thorax consists primarily of four parts, a dorsal part (*tergum* or *notum*), a ventral part (*sternum*), and on each side, between the tergum and the sternum, a *pleurum*.*

The prefixes *pro-*, *meso-* and *meta-* are used before *notum* and *sternum* to denote the notum and sternum of the prothorax, mesothorax and metathorax respectively.

"The tergum of each thoracic segment is composed typically of four sclerites. These are arranged in a linear series. They are named, beginning with the first or most cephalic, *præscutum*, *scutum*, *scutellum* and *post-scutellum*. In the prothorax the sutures between these four sclerites are in many cases obsolete, the pronotum appearing to be composed of a single sclerite. In beetles and bugs the scutellum of the mesothorax is usually quite conspicuous, appearing as a more or less nearly triangular piece between the first pair of wings at their base. Most entomological

* Tergum, sternum and pleurum, with their adjectives tergal, sternal and pleural are sometimes used to denote respectively the dorsal, ventral and lateral parts of the entire body of an insect. In such cases the terms *tergite*, *sternite* and *pleurite*, are applied to the dorsal, ventral and lateral parts of each segment.

writers refer to this sclerite as *the* scutellum. Of the four sclerites which compose the tergal portion of each thoracic segment, the scutum is usually the largest; the scutellum is the second in importance; while the præscutum and the post-scutellum are frequently but little developed" (Comstock)

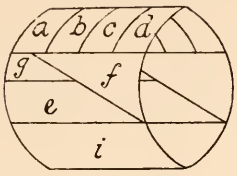

Fig. 10. Diagram of a thoracic segment (after Comstock).

a, præscutum; *b*, scutum; *c*, scutellum; *d*, post scutellum; *e*, episternum; *f*, epimeron; *g*, parapteron; *i*, sternum; *a*, *b*, *c* and *d*, taken together form the tergum; *e*, *f* and *g*, taken together form the pleurum.

The sternum consists of but one sclerite.

The sclerites of the pleurum are the *episternum* and the *epimeron*, and sometimes a third, the *parapteron*. Their position is shown in fig. 10. The parapteron in different groups of insects has also been called the *tegula*, *scapula* and *patagium*. The thoracic *spiracles** pierce a small piece of the pleurum called the *peritreme*.

Attached to the thorax are the organs of locomotion—the legs and the wings.

The leg, or the foot of an insect, as it is indifferently called, consists of five parts, the *coxa*, *trochanter*, *femur*, *tibia* and *tarsus*. The coxa, or hip joint, is the basal part, and is attached to its thoracic segment near the lateral border of the sternum, sometimes so firmly as to be immovable. A small sclerite is sometimes found between the coxa and the epimeron, called the *trochantin*. The trochanter is between the coxa and the femur, or thigh. The fourth part is the tibia, or shank, and the terminal or fifth part is the tarsus, consisting of from one to six joints. Usually the leg of an insect is armed with spines, or clothed with hairs. The spines at the apex of the tibia are usually longer than the others, and receive the distinctive name of *tibial spines*, or *tibial spurs*. The last joint of the tarsus bears one or two *tarsal claws*, *nails*, or *unguiculi*. On the ventral surface of the joints of the tarsus are often "cushions of short hair or of membrane, capable of

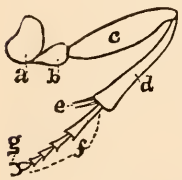

Fig. 11. Leg of an insect.

a, coxa; *b*, trochanter; *c*, femur; *d*, tibia; *e*, tibial spurs; *f*, tarsus of five joints; *g*, tarsal nails.

* See page 71 of this volume of ENTOMOLOGICAL NEWS

inflation, or concave plates, which act so as to produce a vacuum and thus enable the insect to walk on the lower surface of objects (Comstock)." These cushions are termed *pulvilli*, or *onychii*. The pulvillus of the last joint very often projects so as to appear between the tarsal claws; it is *the* pulvillus. When, as sometimes is the case, the last tarsal joint has two pulvilli, one under each claw, there may be between them a third piece of similar structure —the *empodium*.

The first pair of legs is directed forwards, the other two pairs backwards. The first pair of legs is sometimes aborted, in which case the second pair is directed forwards.

The true, or thoracic legs, may or may not exist in the larva. When they do exist they are jointed. False, or abdominal legs, are found both in larvæ and imagos, and will be referred to in treating of the abdomen. P. P. C.

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ENTOMOLOGY AT LONGPORT, N. J.

BY JOHN HAMILTON, M.D.

Longport is on the southern end of the island on which Atlantic City is situate, from which it is distant about six miles. This part of the island is narrow, and the space between the ocean and the bay is a succession of sandhills without any extensive salt marshes. The sides of many of these dunes and intervening depressions support an interesting flora, much of which is strictly maritime, and blooms during this month, attracting several species of Lepidoptera and many beautiful Hymenoptera. The native species of Coleoptera are few in comparison with the number on Brigantine Beach, where there are extensive salt meadows, and where I could have taken two hundred or more species with no more labor than was expended in collecting the forty-seven at Longport. The species not formerly taken at Brigantine, for which see Smith's Catalogue of the Insects of New Jersey—were *Cicindela marginata* Fab., which was somewhat abundant among the sand-hills with *repanda* and *hirticollis;* two forms of *Cercyon* occurring together in great numbers in and under decaying sea-grass deposited on sandy places by the bay tide, one of which, on comparison with Swedish specimens, seems to be *C. littorale* Gyll., and the other apparently only differing by having the apex

of the elytra pale; *Xantholinus pusillus* Sachse, which greatly resembles an undescribed maritime species from Florida, but which, like *emmesus*, has only five punctures in the dorsal series of the thorax; and *Geotrupes Horni* Blanch., dug from holes under mushrooms on the main land. Several examples of *Euphoria areata* Fab. were taken on the wing among the sand-hills on the 9th, 10th and 11th, but none afterward.

The Lepidoptera and Orthoptera are the same as on Brigantine, but here seems to be a metropolis of the larger aculeate Hymenoptera—Apidæ, Andrenidæ, Vespidæ, Sphecidæ, etc., but not having studied this order much, I know few of the species. Inspired with a sudden interest by reason of their great variety, activity and beauty, I collected them one sunny afternoon, and found I had twenty-seven species from one-half to two inches in length—a beautiful collection. Stung? Of course I got stung; in fact, I was stung, I think, at least once by every species collected, but the fascination of capturing such charming creatures is so great one does not greatly mind this after the first three or four stings, as the sensibility of the thumb and finger of the hand used in transferring them from the net to the bottle becomes greatly obtused. The sensation produced by the sting of each species is mostly appreciatively different, so much so, that with a little experimenting, without seeing them, their differentiation might not be difficult. The sting of such species as use this organ merely defensively causes simply pain in varying degrees, while that of such as use it in addition in the capture of prey, produces, after the momentary pain of the thrust, a numbness more or less paralizing to the hand, and often lasting a whole day. To this class belongs the beautiful *Mutilla occidentalis*, whose sting is near half an inch in length, and the feeling it causes so painful and persistently benumbing that, I confess, I would not care to come in contact with it at close intervals.

Unlike the honey bee, these insects never leave a sting in the wound, and the same individual can use this weapon any desired number of times, an accomplishment that might be of some practical use in case stinging should be adopted as a remedial measure in Legitimate Medicine, as is quite possible. The honey bee has often been used by empirics with good results, it is claimed, in the treatment of rheumatism, neuralgia, forms of local paralysis and various diseases, and cases have lately been reported in

medical journals by legitimate practitioners to the same effect, but the honey bee might not be the most efficacious; in fact, each species may be possessed of a different potentiality and better adapted to the treatment of one disease than to that of another, which might be readily determined by a little empirical experimenting, and quite probably the greatest remedial virtues would be found in the species producing numb and paralyzing effects.

Treatment of this kind can best be conducted in a hospital, and as Hymenoptera of the most desirable species are abundant in many places on the coast and easily cultivated, the establishment there of an enkentric sanitarium is not a future improbability, and in connection with pure ocean air, hot or cold sea-water baths and other adjuvants, could scarcely be else than meritoriously popular.

———o———

DESCRIPTION OF THE PREPARATORY STAGES OF DATANA CONTRACTA Walker.

BY WM. BEUTENMULLER.

Egg.—Same as that of *Datana ministra* Dr. Laid in masses of twenty-five to fifty, on the underside of leaf.

Young Larva.—I have made no record of this stage.

After First Moult.—Head jet-black, shining, as is also the cervical shield. Body brown, with four very pale yellow stripes along each side and three beneath. Abdominal legs dull orange with darker bands. Thoracic feet and anal clasps and plates jet-black.

After Second Moult.—Appearance yellow. Head same as in the previous moult. Body more reddish brown, also the cervical shield. The stripes are comparatively broad, the space between being somewhat narrower. The feet are also reddish brown, also the tips of the abdominal legs.

After Third Moult.—Head and cervical shield jet-black, shining. Body color pitchy brown, covered sparsely with sordid white hairs. The stripes are now sordid white and equidistant, and as broad as the intervening spaces, except the dorsal space, which is the widest. Body beneath concolorous to the above, with the three stripes much narrower than the intervening spaces. On the 4th, 5th, 10th and 11th segments are two reddish brown

patches. Abdominal legs reddish brown with black corneous bands. Thoracic feet and anal clasp jet-black. Length 30 mm.

After Fourth Moult—*Mature Larva.*—The cervical shield now becomes orange-yellow and the stripes creamy-white, otherwise the same as in the previous stage. Length when full grown 55 mm.

Food Plants.—Various species of Oaks (*Quercus*) Chestnut (*Castania*) and Hickory (*Hickoria*). Single brooded.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of Entomological News solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

NOTICE.—Those who wish to continue their subscriptions to **Entomological News** for the coming year, will please indicate their desire to the Treasurer (see second page of cover) **before** January 1st, next. The price will be the same—**One Dollar.** We hope to make volume 2 even better than 1, and trust that our readers will do what they can to help us do so.—Ed.

The following four species of Pompilidæ were captured in the act of carrying off spiders during the last season, viz.: *Pompilus æthiops* Cr., *biguttatus* Fab., *marginatus* Say, *Priocnemis pomilius* Cr.—W. J. Fox.

We have received from Mr. Wiley, of Miles City, Mont., a fine photograph of what is supposed to be the larva of *Coloradia pandora* Blake. The caterpillar was found feeding on sage brush. Mr. Wiley describes it as follows: Mature larva.—Color all black, spines shiny and stng the hand like *Hyperchiria io.* Pupa somewhat resembles *io*, but smaller, and not so robust. Pupa nearly black. Pupa rotted.

The second annual meeting of the Association of Official Economic Entomologists will be held at the University Buildings, Champaign, Ill., November 11th to 15th, proximo, at the same time and place as the meeting of the Association of Agricultural Colleges and Experiment Stations. The committee on Entomology of the latter association will meet at the same time. Members expecting to attend will confer a favor upon the officers if they will announce the fact, and will send titles of papers to be read, or topics they desire discussed, to the Secretary. All are earnestly urged to be present if possible.—J. B. Smith, Sec., New Brunswick, N. J.

ALLOW me to call your attention to an error which appeared in ENTOMOLOGICAL NEWS for May, and which I think is worth correcting. The *Erebia* which Mr. J. D. Evans collected at Sudbury, in 1889, was not *epipsodea*, but *discoidalis*, a much rarer species, and hitherto only taken many degrees further North. Mr. Evans took five specimens in all, and all on the same day, and one or two were also taken by Dr. E. D. Peters, Jr. I have recently heard from Mr. Evans in reference to his collecting during the past season, but no specimens of this interesting species were obtained there this year. H. H. LYMAN.

I DESIRE to state in regard to my own observations of the cocoons of *Callosomia angulifera*, that during the Winter of 1889-90, I collected, on the Catawissa Mountain at an altitude of 1800 feet, 77 cocoons of what I supposed to be *C. promethea*, all of which were suspended on Sassafras and Wild Cherry by a silken cord covering the foot-stalk of the leaf and firmly attached to the twig. Of these 12 did not hatch; from 29 there emerged ichneumon parasites, and from the remaining 36 I succeeded in obtaining 27 *promethea* and 9 *angulifera*, all females.' I never looked for or found a cocoon of *angulifera* on the ground. STEPHEN BALDY,

Catawissa, Pa.

DRAGONFLIES CONGREGATING AT NIGHT.—Prof. D. S. Kellicott, of the Ohio State University, Columbus, O., writes, in a letter of Sept. 16, 1890, "In your observations of Dragonflies, have you found them congregating at night? In July last I met, several times, with an interesting case. *Hetærina americana*, as I suppose, I have not compared the descriptions of Walsh's species, along the Shiawassee River, Michigan, gathers in great numbers on plants overhanging the river. I often gathered from twenty to thirty by one sweep of the net. Sexes mingled, males more numerous." (with Prof. Kellicott's permission.—P. P. C.)

EDWARD BAMBRICK, 32 years, of Lagrange, near Bustleton, died on Wednesday, of blood poisoning, caused by the bite of a green caterpillar, Nearly a fortnight ago Bambrick told Policeman Ashton, of Bustleton, that he had been bitten on the neck by a green caterpillar as he lay on the grass in front of his own home. The creature inflicted what seemed an insignificant puncture, which bled freely. He did not heed the wound until some time after, when Dr. Beyer was called in. Medical skill failed to overcome the poison, and the patient died.—*Philadelphia Press.*

ANY other irritant would have acted in the same way, the fault was in the individual.—ED.

OBITUARY.

PETER MAASEN, of Elberfield and Dusseldorf, died on August 2d, in his eightieth year. Mr. Maasen was well known through his writings on Saturnidæ, of which he made a specialty.

Mr. C. G. HALL died September 3d, at Bucland, Dover, England.

WE have received notice of the death of Mr. C. Zeiller, of Regensberg, Bavaria.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be limited to twelve (12) for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Such identifications as can be given will be published, according to number, in the issues of the NEWS. Address packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

JOURNAL OF THE ASIATIC SOCIETY OF BENGAL, vol. xix, part 2, 1890. —Suppl. No. 1, Catalogue of the Insecta of the Oriental Region. No. 2, Family Carabidæ, E. T. Atkinson.

PROCEEDINGS OF THE LINNÆAN SOCIETY OF NEW SOUTH WALES, vol. iv, pt. 3d.—Rhopalocera from Mt. Kosciusko, New South Wales, by A. Sidney Oliff. New species of Lampyridæ, including a notice of the Mt. Wilson Fire-fly, by A. Sidney Oliff. Further notes on Australian COLEOPTERA, with descriptions of new genera and species, pt. 4, by Rev. T. Blackburn. DIPTERA, pt. 7, the Tipulidæ brevipalpi, by Fred. A. A. Skuse, vol. iv, pt. 4th. A revision of the Australian species of *Euplœa*, with synonymic notes and descriptions of new species, by W. H. Meskin. On Queensland and other Australian MACRO-LEPIDOPTERA, with localities and descriptions of new species, by Thomas P. Lucas. Descriptions of additional Australian Pyralidina, by E. Meyrick. Revision of Australian LEPIDOPTERA, pt. 3, by E. Meyrick. Revision of the genus *Heteronyx*, with descriptions of new species, by Rev. T. Blackburn. Notes on Australian COLEOPTERA, with descriptions of new species, pt. 4, by Rev. T. Blackburn. Studies in Australian Entomology—No. 2, Six new species of Carabidæ, by Thomas G. Sloane.

ANNALS AND MAGAZINE OF NATURAL HISTORY, vol. vi, No. 33.—Notes on Longicorn COLEOPTERA of the group Cerambycidæ, with descriptions of new genera and species, by Charles J. Gahan. Descriptions of new species of African Lycænidæ, chiefly from the collections of Dr. Staudinger and Henley Grose Smith, by W. F. Kirby.

THE APPLE MAGGOT, *Trypeta pomonella*.—A consideration of the literature, history, distribution, transformation, life-history and habits of this insect; also remedies. The results of investigations made in 1888–89, by F. L. Harvey, M. S. This interesting paper is fully illustrated by four plates, with a number of figures.

NEW TYPES OF COCKROACHES FROM THE CARBONIFEROUS DEPOSITS OF THE U. S.—New carboniferous Myriapoda from Illinois. Illustrations of the carboniferous Arachnida of North America, of the orders Anthracomarti and Pedipalpi. The insects of the Triassic beds at Fairplay,

Col., from Memoirs Boston Society Natural History, by S. H. Scudder, 72 pages and 12 fine plates; new genera and species are described.

THE ENTOMOLOGIST, October, 1890.—Additions to the British list of Deltoids, Pyralides, Crambi, since 1859 (with plates), by Richard South. Abundance of LEPIDOPTERA in New Zealand, by W. W. Smith. Notes on *Teniocampa opima*, by J. Arkle. Contributions to the chemistry of insect colors, by F. H. Perry Coste. The Westman Islands, by Rev. Dr. F. A. Walker. The alteration of the name of Indian Geometrid Moth, by A. G. Butler. Entomological papers in Continental Periodicals, by W. Warren. Entomological notes, captures, etc. Doings of Societies, Reviews.

THE ENTOMOLOGIST'S MONTHLY MAGAZINE, October, 1890.—Classification (concluded), by A. F. Griffith. Occurrence of *Plusia moneta* Fab. in Great Britain, by C. G. Barrett. *Eulepia cribrum*, by Rev. E. N. Bloomfield. *Apatura isis* by J. E. Mason. Note on the food of *Drymonia dodonæa*, by W. R. Jeffrey. Re-occurrence of *Epischnia Bankesieila* at Portland, by N. M. Richardson. Occurrence in Dorset of *S. subsequana*, H. and *M. rufimitrana* H. S., id. Notes from the Red Sea, by J. J. Walker. The life-history of the new *Tinagma* (*T. betulæ*) of the Birch, by J. H. Wood. Description of *T. betulæ* n. sp., by H. T. Stainton. Some remarks on the genus *Xylophilus*, with descriptions of two new species from Japan, by G. C. Champion. Two species of Psocidæ new to Britain, by R. McLachlan. *Æschna juncea* L. near Ringwood, id. *Gymnancyla canella* in September, by A. E. Hall. *Aplota palpella* in Wilts, by E. Meyrick. Hybernation of *Simæthis pariana*, by B. A. Bower. *Gyrinus urinator* at Swange, by C. H. Goodman. *Carabus glabratus* Payk. in Ireland, by Rev. Canon Fowler. *Creophilus maxillosus* v. *ciliaris* Steph., by H. S. Donnisthorpe. *Athous rhombeus* Ol. at Cobham Park, by J. Malings. Note on *Scopæus erichsoni* and *Hodroporus davisii*, by W. G. Blatch. Coleoptera in the New Forest, by Rev. Theo. Wood. *Quedius tristis predaceous*, by Prof. W. R. Kilburne. Obituary. Societies.

THE YOUNG NATURALIST, October, 1890.—The Pterophorina, by J. W. Tuft. Coleoptera at Guestling, by A. Ford. *Pieris brassicæ* pupæ lying over, by James Dixon. *Lithosia sericea*, by Joseph Collins. *Nonagria typhe*, by G. Pullen. *Hydœcia petasites*, by Joseph Collins. *Noctua dohlii*, by A. E. Hall. *Agrotis agathina*, by Joseph Collins. *Rumia cratægata*, var., by A. E. Hall. Hawk moths, by C. W. Dale.

MEMOIRES SUR LES LEPIDOPTERES REDIGES par N. M. Romanoff, tome 4. Le Pamir et La Faune Lepidopterologique par Gr. Groum-Grshimailo. Illustrated with 21 magnificent colored plates with many figures, 575 pp. St. Petersburg, 1890.

RECUEIL ZOOLOGIQUE SUISSE, v, No. 2, July, 1890.—The histological disposition of the pigment in the eyes of Arthropods under the influence of direct light and of complete obscurity, by Mlle. M. Stefanowska, 2 pl.

Zoologischer Anzeiger, Sept. 1, 1890.—On a peculiar organ in the embryo of Locustidæ, by W. M. Wheeler.

Jahrbuch des Naturhistorischen Landes-Museums von Karnten 20 heft, Klagenfurt, 1889.—The Lepidoptera of the Lavantthal, and of both Alps Kor and Saualpe, by G. Höfner. On Carinthian Hymenoptera,* by E. Liegel.

Zeitschrift fur Wissenschaftliche Zoologie, L, 1890.—Researches on the Structure of Spermatozoa: The spermatozoa of insects (I. Coleoptera), by E. Ballowitz, 4 plates. The development of the sexual organs and the intestine in *Chironomus*, by R. Ritter, 1 plate.

Entomologische Nachrichten, xvi, Nos. 17 and 18, September, '90. —New West African Orthoptera from Kribi, collected by H. Lieut. Morgen,* F. Karsch; 4 woodcuts; *Morgenia*, *Matæus*, *Chondrodera*, *Lichenochrus*, *Mormotus*, *Liocentrum*, *Opisthodicrus*, *Tomias*, *Lagarodes*, *Stenampyx*, *Pantecphylus*, *Polyglochin*, *Habrocomes*, new gen. Synopsis of the trispinous species of *Sphenoptera* of Europe and the Caucasus,* by E. Reitter. A Review of Scudder's Butterflies of the Eastern United States and Canada, by A. Speyer.

Sitzungsberichte der Naturforscher Gesellschaft bei der Universitat Dorpat, ix, 1 heft (1889), 1890.—Four papers on Livonian Diptera, by H. Sintenis. Observations on Tardigrada, by H. Rywosch.

Mittheilungen der Schweizerischen Entomologischen Gesellschaft, viii, No. 5, August, 1890.—Three papers on Swiss *Bombus*, by Frey-Gessner. Notes on Swiss Neuroptera, by F. Ris. Two new genera of Tryphonidæ,* by Dr. Kriechbaumer; *Aethalodes*, *Bremia* n. gen. (from Europe). Diptera Helvetiæ, by Dr. G. Schoch; 1st part. Coleoptera Helvetiæ, by Dr. Stierlin (continued).

Bolletino dei Musei di Zoologia ed. Anatomia comparata della R. Universita di Torino, N. 78.—Diagnoses of new species of Diptera [from Italy]*, by Dr. Giglio-Tos.

No. 84.—New species of Diptera from the Zoological Museum of Torino,* by Dr. Giglio-Tos; 1 plate; *Ditomyia zonata*, *D. mexicana*, Orizaba, Mexico, n. sp., figs. 6 and 7.

No. 85.—On a mode of preserving the larvæ of Lepidoptera with their colors, by F. Crosa.

Zoologischer Anzeiger, Sept. 15, 1890.—Some observations concerning the closed tracheal system in insect larvæ by Dr. H. Dewitz.

Verhandlungen der k. k. Zoologisch-botanischen Gesellschaft in Wien xl, 1 quartal, 1890.—Monograph of the Proscopidæ,* by C. Brunner. v. Wattenwyl; 3 plates; *Prosarthria*, *Apioscelis*, *Corynorhynchus*, *Tetanorhynchus*, *Stiphra*, *Taxiarchus*, *Ancholatus*, *Epigrypa* n. gen.; all the species are from South America. A new species of Tenthredinid,* and Apidæ frequenting *Brassica oleracea* L, by Dr. R. Cobelli. Determination table of the Parnidæ of Europe, the Mediterranean fauna and the bordering districts, by A. Kuwert.

* Contains new species other than North American.

Doings of Societies.

A regular meeting of the Entomological Section of the Academy of Natural Sciences was held at the Hall September 25th. Meeting called to order at 8.20 P. M. In the absence of the Director, Dr. Horn, Mr. Martindale occupied the chair. Members present: Messrs. Ridings, Laurent and Skinner. Associates: Welles, Calvert, Westcott, Liebeck, Castle, Seeber and Fox. A number of specimens were presented to the cabinet, among them being *Arg. montinus* and *C. mandan* from Mr. S. H. Scudder. Mr. Calvert presented determinations of the species of *Odonata* brought home by the expedition sent to Mexico by the Academy. Mr. Laurent reported the capture of *C. serena* and *Apatela funeralis* at the electric light. Mr. Martindale spoke of the great scarcity of species of *Catocala* this Summer, and reported finding *P. ajax* and the larvæ of *Phobetron pithecium* and *Tolype velleda*. He had had success in capturing moths by rubbing rotting bananas on trees to attract them. Mr. Welles reported the capture of *Vanessa J-album* and *Cat. unijuga* from Elwyn, Delaware County, Pa. He had seen *Feniseca tarquinius* greatly attracted to a perspiring individual. Mr. C. W. Johnson, of the Wagner Institute, was elected an associate.

HENRY SKINNER,
Recorder.

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, Sept. 4, 1890.—Under the head "short communications and exhibition of specimens," Mr. Heidemann spoke of the occurrence of *Cylapus tenuicornis* (Capsidæ) near Washington, D. C., and Mr. Schwarz exhibited specimens of *Choragus nitens* (Anthribidæ) lately found in the District, also a branch of *Carpinus* infested in a peculiar way by the larvæ of *Acoptus suturalis* (Curculionidæ) and a specimen of *Hymenaricys nervosa* with deformed antennæ, and he also called attention to the reported discovery of the stylopized Gryllotalpas in eastern Africa. Dr. Marx reported having found specimens of *Latrodectus* under a board, devouring carabids—the webs of the spider being garnished with fragments of the beetles. As possibly throwing light on the subject, Prof. Riley mentioned having been greatly surprised this Summer at the large number of insects, *Lachnosterna*, *Xylocopa*, *Bombus*, etc., that he found about his grounds at Sunbury, with large perforations and apparently killed by birds, and probably the house wren. Mr. Fox thought that spiders were largely responsible for this work. Prof. Riley described his recent investigations into the life-history and habits of *Sphecius speciosus*, exhibiting specimens of the egg *in situ* on Cicadas, and of the young and full-grown larvæ and cocoons. Careful drawings were shown illustrating the different stages and habits of *Sphecius*.

Mr. Schwarz queried, in view of the earlier appearance of the *C. septendecim*, whether *Sphecius* ever preyed on that species. Prof. Riley showed that the period of *Septendecim* and *Sphecius* overlapped, and that the general belief that *Sphecius* attacked the seventeen-year locust, while not based, so far as he recalled, on observation, was probably well founded

Mr. Howard exhibited specimens of sand cricket, *Stenopelmatus fasciatus*, which had been recently sent to Prof. Riley by one of the correspondents. Mr. Howard stated that they occurred abundantly in the southwest, and are reported erroneously to be extremely poisonous. As stated by Prof. Riley, in the "Standard Natural History," they are carnivorous in habit.

Mr. Mann described some observations and experiments relating to the longevity of decapitated specimens of *Caloptenus*, and the vigorous resistance of such specimens to the attacks of ants.

Mr. Schwarz, "On Black Locust Insects," presented a list of twenty-four species of Coleoptera bred by him in May from dying trunks of Black Locust, and spoke of the principal insect enemies of this tree in the District. Discussed by Messrs. Riley and Howard.

Mr. Schwarz also read a paper on the food habits of some Scolytidæ observed by him during the Summer. Galleries of the following species were exhibited and explained: *Xyloterus politus* in *Acer dasycarpum; Xyleborus furcatus* and *pubescens* in Walnut; *Cnesinus strigicollis* in *Liquidambar styraciflua*.

C. L. MARLATT,
Recording Secretary.

PROCEEDINGS OF THE ENTOMOLOGICAL CLUB OF THE A. A. A. S. OF INDIANAPOLIS, 1890.—The Club met in regular session on August 20th, 9 A. M., room 11, in the State House. President, Prof. A. J. Cook, in the chair. There were present through the meeting, Messrs. Chas. Robertson, Clarence M. Weed, E. W. Clatpole, James Troop, F. S. Earle, L. H. Pammel, Herbert Osborn, John Marten, H. Garman, Geo. F. Atkinson, Charles W. Hargitt, Thomas Hunt, John W. Spencer, W. B. Alwood, J. Fletcher, F. M. Webster, W. W. Norman, S. G. Evans. W. S. Blachley, Truman P. Catter, Ralph St. F. Perry, Miss Mary E. Murtfeldt, Miss Augusta Murtfeldt, Mrs. K. B. Claypole, Mrs. O. Hanney.

The President proceeded to deliver a most interesting address upon Teaching of Entomology.

Dr. C. Weed then read a paper upon the life-history of the evening Primrose Curculio (*Tyloderma foveolatum*). He reported breeding a species of *Bracon* from the larvæ of the Curculio, and recorded observations upon the habits of both insects.

At the request of the President, Mr. Fletcher presented some notes upon the injuries caused by the Hessian Fly, the wheat stem maggot and an undetermined species of *Oscinis*. He stated that he had been studying these insects at Ottawa, Can., during the last four years.

A paper on the subject of American Silk Spinners, by Mr. Edward L. Graef, was read by the Secretary, of which the following is an abstract:

"Refers to the periodical, phenomenal increase of some species of insects and their sudden disappearance. Speaks of the adaptability of the cocoons of *L. cecropia* Linn. for the manufacture of silk, and of the firmer belief of the writer in the possibility of the creation of an American industry in the rearing of their larvæ for manufacturing purposes. Solicits

plans for the profitable rearing of the larvæ of this, or other American silk spinners. Also for preparing their cocoons. Offers a prize ($50.00) for this purpose."

An interesting paper was read by Dr. C. M. Weed, the subject of which was "The food plants of the Clover Stem Borer (*Languria mozandi*). Fifteen species of the plants were reported on which the larvæ is known to feed.

Prof. Osborn followed with a paper on a peculiar Coleopterous larva infesting the stems of plants.

Dr. Weed presented a short paper upon the oviposition of *Listronotus latiuscutus*. The eggs are laid in bunches of five to ten on the leaf stalks of *Sagittaria variabilis*, and are covered with bits of epidermis chewed up by the adult beetle.

Mr. Charles Robertson made some remarks upon the habits of *Emphor bombiliformis*, which he stated was apparently a special visitor of *Hibiscus*. The nests were constructed by burrowing in the ground, and, in order to facilitate the excavation, water was frequently carried to the hole with which the bottom was moistened. Sometimes but one pellet of earth would be carried out after an application of water, while in some cases he had observed as many as four of these pellets thrown out immediately following an application.

Miss Mary E. Murtfeldt read a charming paper entitled, "Some experiences in rearing insects." In this paper some valuable hints were given as to the best way to manage larvæ so as to carry them to maturity, and the most frequent causes of failure were mentioned. The paper was listened to with great attention by all present.

The Secretary proceeded to read the following paper upon "The Preparatory Stages of *Eustrotia caduca*," by D. S. Kellicott, of Columbus, O.

Prof. Cook presented a note upon a new breeding habit in *Agrotis C-nigrum*. He had found the eggs on the foliage of currant bushes and reared the larvæ thereon.

Prof. Osborn read an interesting paper on the period of incubation of Mallophaga.

Mr. S. F. Earle presented several interesting notes on some injurious insects of southern Mississippi. *Diabrotica 12-punctata* was a very abundant insect, and, in addition to its well-known food-plants, it also fed to an injurious extent upon the foliage of peach and also cabbage. Cutworms were very injurious in gardens. A species of Aphis worked serious injury to the cucumber and melon veins. *Pieris rapæ* is exceedingly destructive. *Doryphora 10-lineata* had not yet reached southern Mississippi. Sphinx larvæ were very destructive to the foliage of tomatoes and the boll worm to the fruit.

(To be continued.)

F. H. WEBSTER,
Secretary.

ENTOMOLOGICAL NEWS for October was mailed October 2, 1890.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

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ANOTHER TROPICAL SPECIES OF LEPIDOPTERA IN FLORIDA.

By G. H. FRENCH, Carbondale, Ill.

In the September number of ENTOMOLOGICAL NEWS, p. 105, Mr. Dyar describes two species of insects new to our fauna, *Callidryas statira* and *Composia fidelissima*. I have had for about a year another species of *Composia* collected in Florida by Prof. Velie, of Chicago, during the Winter of 1888 and 1889, and sent to me by my friend, Mr. W. E. Longley, of the same city. Not having the means of identifying the specimen I sent a colored print of it to Mr. A. G. Butler, of London, who writes that it is *Composia olympia* Butl. From comparison of Mr. Dyar's description with my specimen it seems to be closely related to *C. fidelissima*. The following figure and description will show the points of difference.

Composia olympia Butl. Expanse 2.5 inches. Black, the fore wings with three bright scarlet, nearly quadrate spots between the costal and subcostal veins, extending from the base to the middle of the cell; a square white spot beyond the third scarlet one; just beyond the end of the cell a transverse row of six white spots of varying size, the last the largest and a little below the

line of the others, the fifth the smallest; beyond this row and about half way to the apex is another row of four white spots, the last out of line of the others; a small spot at the posterior angle; all of these transverse spots more or less rounded. In the cell are two narrow bars that do not quite reach from vein to vein, the outer white, but the inner white, strongly washed with scarlet.

The hind wings have a subterminal row of nine white spots, the first, fourth and ninth, small; the second largest. The fore wings show blue reflection in oblique light in the cell up to near the first bar, in the outer part of the cell about the end, at the base below the cell and along the posterior margin. In the same light the hind wings show blue reflection above the subcostal vein almost to the apex, in the cell to its end, below the cell and lower branch of submedian vein to the outer margin. Head with eight white dots; back of antennæ, below antennæ, above the eye and back of the eye. Collar with a row of six white dots. Thorax with six white dots on the anterior part and a row of four pale yellow dots across the posterior. Abdomen blue by reflection.

Beneath, the white spots of the upper side repeated, the space of the scarlet spots solid scarlet and confluent with the first bar in the cell, this bar having no white in it as it has above. The blue reflection is more pronounced than it is on the upper surface. The abdomen is banded with pale yellow and black, the terminal pale band whitish.

According to Mr. Butler this seems as yet to be a rare species, though Prof. Velie took about a dozen recently. The type specimen was from Brazil; it has been taken in Central America and once before at Key West, Fla.

ALETIA ARGILLACEA Hüb., was seen sparingly the last week in September at Columbus, O. I have not yet seen it in abundance here, whilst at Buffalo, N. Y., scarcely an Autumn passes without the appearance of many. If my observations accord with facts, why the greater abundance at the point so much further from the cotton fields?—D. S. KELLICOTT.

Description of three new species of African Hesperidæ.

BY REV. W. J. HOLLAND.

The appended descriptions are all of species belonging to the genus *Proteides* Hüb. I hope shortly to be able to publish figures of these and a number of other species.

1. **Proteides margaritata** n. sp.

Allied to *P. erinnys* Trim. Upperside: *Anteriors* broadly dark brown, clothed with greenish yellow hairs at the base, and having the following markings: three small subapical spots arranged in a series curving outwardly from the costa toward the external margin, a quadrate spot at the end of the cell, a square spot beyond the end of the cell between the second and third median nervules, below this between the first and second median nervules a spot resembling an hour-glass, and between the first median nervule and the submedian vein two triangular spots, of which the one nearest the base is obscure, being overlaid by the greenish hairs which cover the base. All of these spots are vitreous. *Posteriors* with the outer third and anterior margin broadly dark brown, cell and middle area pale orange, covered with greenish hairs at the base and intersected by the dark brown nervules. The outer margin at the anal angle is broadly orange red.

Underside: *Anteriors* fuscous, clouded with deep black at the apex and the middle of the disc, and broadly stramineous on the inner margin. The subapical area is irrorated with minute white scales. The spots of the upper surface reappear, but are not so distinct and sharply defined; the subapical series and the spot at the end of the cell are surmounted toward the costa by broad spots of nacreous. The end of the cell is also defined by a very narrow line of the same color. *Posteriors* of the same color as the primaries, clouded with dark brown on the outer third, and having the middle area ornamented by a very broad and irregular spot of pearly white. The anal angle is more narrowly orange than the upper surface; the upper surface of the abdomen is fuscous, annulated with pale yellow; the lower surface of the abdomen is not so distinctly annulated with pale gray. Antennæ black upon the upper side, fuscous below. Expanse of wings 48 mm.

Hab.—Valley of the Ogove. Type in coll. Holland.

2. **P. iricolor** n. sp.

Upperside uniformly dark brown, showing in certain lights a golden-green gloss. Fringe at the anal angle of the posteriors broadly white.

Underside: *Anteriors* with the anterior margin and the apical third violet-green. The lower half of the cell and the middle third of the wing is brown without any iridescence, and the posterior margin is very broadly pearly-white. There is a crimson spot on the costa at the base. *Posteriors* violet-green, with a beautiful iridescence in certain lights, the violet tints deepest toward the inner margin and the anal angle, where the wing inclines to black. There is a crimson spot at the base, two longitudinal spots of velvety-black in the cell, and a discal series of rounded spots of the same color, of which the one nearest the anal angle is bifid. The fringes at the anal angle are white, as upon the upper surface. The head, thorax and abdomen are of the same color as the wings upon the upper side; the lower side of the abdomen is ochreous. The antennæ are black above and ochreous below. Expanse of wings 55 mm.

Hab.—Valley of the Ogove. Type in coll. Holland

3. **P. laterculus** n. sp.

Allied to the preceding, but smaller.

Upperside: The entire upperside of the wings, head, thorax and abdomen, is dark brown. The fringes of the posteriors near the anal angle are light fuscous.

Underside: The ground color is the same as upon the upper surface; the inner margin of the primaries is broadly white. The base and middle area of the secondaries is brick-red; there is a large circular spot of velvety-black at the end of the cell in the secondaries, and a series of five discal spots of the same color following this. The series is interrupted opposite the cell, the three largest spots being placed after the third median nervule. The fringes at the anal angle, and the tip of the abdomen on the underside are stramineous. Expanse of wings 38 mm.

Hab.—Valley of the Ogove. Type in coll. Holland.

(To be continued.)

ELEMENTARY ENTOMOLOGY.

Sixth Paper.—The Wings.

The wings of an insect are membranous expansions of the body wall. They first appear in the pupal or later nymphal stages as flat, sac-like projections near the lateral borders of the terga of the meso- and metathorax. As the wings develop, the greater part of the dorsal and ventral walls of this flat sac become closely united. Along certain lines, both the dorsal and ventral walls become thickened. These lines are so situated that when the union of the two walls takes place, those on the dorsal wall coincide with those on the ventral wall; they thus form the frame-work of the wings, and are called *veins*, *nerves*, or *nervures*. Many veins enclose a tube formed by the union of two grooves, placed one on the inner or opposing side of each of the two thickened lines. Through these tubes blood circulates; often a trachea exists in the centre of this tube. The veins or nerves of an insect's wing do not correspond to the similarly named parts of higher animals.

That part of the wing by which it is attached to the thorax is the *base*. The shape of the wing is roughly triangular; its three edges, borders, or margins, receive distinctive names; the front edge is also called the *costal* margin, or simply the *costa;* the outer edge is also termed *apical*, the remaining border is known as the *inner*, *hind*, or *anal* margin. The *apex* of the wing is the angle where the front and outer margins meet. The inner and outer margins meet at the *hind* or *anal* angle.

All the veins of a wing taken collectively constitute the *venation*, *neuration*, or *reticulation*. The venation is regular, and although differing very much in various groups of insects, is based on a general plan. Five (or more) large veins run from the base towards the apical border, diverging from each other. These veins branch ; at right angles to these large veins and their branches are other short veins. The branches of the large veins are sometimes known as *sectors*. Each litttle area or space of the wing, bounded by veins, is called a *cell*, or *cellule*. No general nomenclature has yet been established for the venation of all the groups of insects; for each group a special nomenclature is in use.

The front wings may be specialized so as to form protective covers for the hind wings. In beetles and earwigs the front wings

are thick and horny, and are termed *elytra*. In water-bugs and others, they are similar to elytra, but the apical part is membranous, hence their name of *hemelytra*. In grasshoppers and katydids they are leathery, or parchment-like, and are called *tegmina*.

Many insects, even of those groups which, as a general rule, undergo a complete transformation, are wingless. Sometimes only the front wings are present; the hind wings are then usually represented by a pair of small club-shaped organs—the *halteres*, *balancers*, or *poisers*—as in the common house-fly. Rarely the hind wings only are present, in which case the front wings are represented by organs similar to the halteres, but distinguished from them as *pseudo-halteres*. P. P. C.

CICINDELIDÆ OF A SEASON.

BY CHAS. LIEBECK.

This has been the most successful season for *Cicindelæ* that has occurred during my experience in Coleoptera collecting. Of nineteen species and varieties occurring in eastern Pennnsylvania and southern New Jersey, fourteen have been taken by me this season.

The species follow in order as they are listed, with some reference to their occurrence during former years.

Tetracha virginica Linn.—Nocturnal in habits, a few specimens being taken in open fields under boards and fence rails, middle of July, at Abington, Pa.

Cicindela unipunctata Fab.—Reported as occurring at Atco and Woodstown, N. J. One of the species not taken this season.

C. modesta Dej.—Not taken as abundantly this season as in previous years, but scattered individuals taken in May, June and July, in all sections of southern New Jersey, in which any collecting was done. Two days in May, 1887, over one hundred specimens were taken in a space, not more than sixty feet square, below Gloucester, N. J. A second brood appears in September.

C. 6-guttata Fab.—Twelve or fifteen specimens were taken under the bark of fallen trees along the banks of Cobb's Creek, Philadelphia, early in April, and a number on the wing the first week in May. Some have also been taken in July.

C. patruela Dej.—Occurs at Lancaster, Pa.; not taken this season.

C. consentanea Dej.—Occurred several years ago below Gloucester, N. J., but none taken in that locality recently. Collected by Dr. Hamilton, at Absecom, N. J., in September.

C. purpurea Oliv.—A common species occurring in May and June in almost every locality. Several specimens were captured on the wing at DaCosta, N. J., March 15, 1886, on sandy spots along the line of the railroad, when ice and snow still lay unmelted between the ties.

C. generosa Dej.—Taken during May and June at Westville, Atco and Hammonton, N. J.; most abundant the last week in May, but few being taken the latter part of June.

C. vulgaris Say.—Isolated specimens taken at different times during the season at Philadelphia, Pa., and Landisville, N. J. One specimen was taken in company with *C. purpurea* at DaCosta, March 15, 1886.

C. repanda Dej.—An early species common everywhere.

C. 12-guttata Dej.—Usually found on the banks of small streams early in May; abundant locally.

C. hirticollis Say.—Found on a small beach on the Delaware River below Gloucester, N. J., and everywhere along the beach at the sea-shore, where the white sand mingles with the mud of the meadows and forms a composition of a dark hue. May, June and July.

C. punctulata Fab.—An abundant species throughout the whole season everywhere. Taken without intervals from May to September. Often attracted to the electric lights at night.

C. tortuosa Dej.—I know of but two specimens ever taken in New Jersey several years ago at Atlantic City, one by Dr. Castle and the other by myself, and have not yet been able to determine whether they actually inhabit this district, or were only accidental introductions.

C. dorsalis Say.—A very common species at the sea-shore, along the water's edge, where sometimes hundreds can be seen within the scope of the eye. Most abundant in July; sometimes an all white variety is taken.

C. marginata Fab.—I found these on the meadows between Sea Isle City, N. J., and the main shore, inhabiting the dry, bare spots, quite abundant in the latter part of July. Have never noticed this species in the sand-hills or on the beach.

C. lepida Dej.—A species peculiar to the sand-hills along the

New Jersey coast. It has, to my knowledge, been taken in all the hills from Atlantic City to Cape May; occurs during the latter part of July, and is, owing to its color and the intense whiteness of the sand, both difficult to see and to capture.

C. marginipennis Dej.—A species occurring in the mountain districts of eastern Pennsylvania, of which I know very little, not having taken any specimens.

C. abdominalis Fab.—Has frequently been reported as occurring at DaCosta, N. J., and although I have made it a point for several years to be in that neighborhood at the time of its appearance, have never, until this season, been fortunate enough to see any. During the last week in June ten or twelve specimens were seen between Hammonton and DaCosta, N. J., the majority of which were captured. It frequents the wagon-roads through the woods, and does not confine itself to any particular locality as other Cicindelæ do, those that were observed being scattered in ones and twos over the entire distance.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive item of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

NOTE ON THE MOLTING OF PHOBETRON PITHECIUM, S. and A.—A larva of this species was observed to molt in the following manner: When preparing to cast its skin it rested on a leaf, the head withdrawn beneath joint 2 in the usual position of rest of larvæ of this group. The skin appeared loose, the long subdorsal processes shrunken, especially at the bases, there tips transparent from the partial withdrawal of the inner part. The larva jerked itself and rocked from side to side till the skin broke along the dorsal line from the head to the last segment simultaneously. As the chitinous part of the head of this insect does not extend up as far as in other subfamilies of Bombycidæ; the new head was readily withdrawn and the larva extricated itself from its skin by a lateral oscillatory movement, at the same time walking forward a little, which served to draw out the subdorsal processes from their old enclosing skin. They were bent backward by the operation nearly in line with the body, and were seen to be attached to the body by a slight white filament, but it

was not observed whether they were attached to the anterior or posterior edge of a segment (they are situated over each segmental suture between joints 3–13 inclusive, the last pair very small). As the new processes are withdrawn from inside the old ones and not formed under the body skin like the hairs of the Arctiinæ, it will be seen that a process once lost cannot be replaced, and, in the present instance, four of the normal twenty were lacking both before and after the molt. As this larva is well known, I will not enter upon a detailed description of it here, but will remark that the ends of the three pairs of long processes (the third, fifth and seventh pairs) appear to be slightly moveable at the will of the larva.

HARRISON G. DYAR.

THERE is a form of *Ergates spiculatus* Lec. (♀), which occurs in Wet Mountain Valley, Colorado, differing from the type as represented in the British Museum collection from the Pacific region, and figured by LeConte in having the elytra marked with whitish between the veins, and pale about the apices, where the dark color gradually becomes subobsolete. The thorax on the other hand, is quite dark. This form perhaps indicates a tendency to that sexual dichroism which is, as pointed out to me by Mr. Gahan, so well marked in certain other Longicorns; or, it may be a climatic race, a product of the drier central region of North America. In structure this species already presents secondary sexual characters which have led to the sexes being described as different species, but normally the sexes do not differ in color. This pale-marked ♀ form of *E. spiculatus* has been mentioned by Leng, but apparently it has received no name; it may be conveniently known as var. *marmoratus*. From one of my specimens of this variety (now in the British Museum) I extracted an egg, which, in its dried state, is pale amber color, elongate, subcylindrical, attenuate at the ends; length, 2¾ mm.; breadth, 1 mm.—T. D. A. COCKERELL.

THE fact mentioned above is by no means rare in its occurrence in the specimens received from Oregon and Washington, nor is it by any means peculiar to the female. The discoloration is not due to climatic influences, as it is equally observed in specimens from the dry regions of the centre of the continent and the notoriously damp climate of the Northwest. They seem to me merely imperfectly chitinized specimens, hardly deserving a varietal name. Such discolorations seem quite common in those Coleoptera with a coriaceous elytral texture. They are probably the result of a reduction of temperature during the evolution of the imago.

GEO. H. HORN.

STINGING POWERS OF VESPA VULGARIS AND ICHNEUMON SUTURALIS.—A few days ago Mrs. Gillette called my attention to a dead (?) wasp upon the window that she had killed, so that it would not sting our little daughter, who would be sure to try to catch the "bug" if she saw it. The wasp was a specimen of *Vespa vulgaris*, and the blow that was supposed to have killed it had entirely severed the abdomen from the rest of the body. Nothing more was thought of the wasp until the next day, twenty-

four hours later, when the screams of the little girl called her mother to the scene. The child had picked up the pretty abdomen of the wasp and had received a severe sting to pay her for her curiosity. The abdomen at this time seemed thoroughly alive. How much longer it would have retained its power to sting, had it not been destroyed, I am unable to say.

STINGING POWER OF ICHNEUMON SUTURALIS.—While collecting a few days since a female *I. suturalis* lit upon a bush just in reach of me. With a quick sweep of the hand I caught it, and held it, while, with the other hand, I got out my cyanide bottle. As I was about to bottle my capture I received a thrust in the palm of my hand that led me to suspect that in my haste I had mistaken a wasp for an *Ichneumon*, and I quickly dropped it. The culprit was recaptured and proved to be, as stated above, *I. suturalis*. The sting was like the thrust of a pin, there being no swelling of the part and no pain after the first two or three seconds.

I had, previous to this, watched *Ichneumons* in their attempts to sting while holding them in my hand, but this is the first time that one has really succeeded in producing anything like a sting.—C. P. GILLETTE.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be limited to twelve (12) for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Such identifications as can be given will be published, according to number, in the issues of the NEWS. Address packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

EUGENE R. FISCHER.—1, *Episcopus ornatus;* 2, *Proconia* sp. (*confluens?*); 3, *Proconia* (*confluens?*); 4, *Stenarops malinus;* 5, *Nysius californicus.*

O. S. WESTCOTT.—1, *Cœnonympha ochracea;* 2, *Rheumaptera hastata;* 3, *Melipotis* sp.; 5, *Megachile latimanus;* 6, *Sparnopolius fulvus;* 9, *Scalophaga stercoraria;* 10, *Scatophaga squalida;* 11, *Dendroctonus* sp.; 12, *Dendroctonus* sp.

F. S. DAGGETT.—1, *Chalcophora virginiensis;* 2, *Rhagium lineatum;* 3, *Cryptus nuncius;* 4, *Bupreslis fasciata;* 5, *Harmonia 14-guttata;* 6, *Coccinella monticola;* 7, *Coccinella transversoguttata;* 8, *Harmonia 12-maculata;* 9, *Hippodamia parenthesis;* 10, *Harmonia picta;* 11, *Pogonocherus mixtus;* 12, *Hippodamia 13-punctata.*

Entomological Literature.

TRANSACTIONS ENTOMOLOGICAL SOCIETY LONDON. Part 3, 1890.—On the structure of the terminal segment in some male Heniptera, by Dr. David Sharp. On the classification of the Pyralidina of the European fauna, by E. Meyrick. Additions to the Cicindelidæ fauna of Mexico, with remarks on some of the previously recorded species, by Henry Walter Bates. A Catalogue of the Rhopalocerous-Lepidoptera collected

in the Shan States, with notes on the country and climate, by Neville Manders. Notes on the species of the families Lycidæ and Lampyridæ, contained in the Imperial Museum of Calcutta, with descriptions of new species, and a list of the species at present described from India, by Rev. Henry S. Gorham. On some new species of African diurnal Lepidoptera, by Philip Crowley.

The West American Scientist, September, 1890.—New Coccids from California, by D. W. Coquillett.

Proceedings and Transactions of the Liverpool Biological Society, vol. iv, p. 170.—The post-embryonic development of a gnat (*Culex*), by C. Herbert Hurst.

Annals and Magazine of Natural History, vol. vi, No. 34.—Description of some new species of African butterflies in the collection of Capt. G. E. Shelley, by E. M. Sharpe.

Proceedings of the Zoological Society of London. Pt. 3, 1890. —On some new moths from India, by H. J. Elwes. On a collection of Acarina found in Algeria, by A. D. Michael. Descriptions of new species of Lepidoptera-Heterocera from Central and South America, by Herbert Druce. On a collection of Lepidoptera made by Mr. Edmund Reynolds on the rivers Tocantins and Araguaya in the Province of Goyaz, Brazil, by Emily Mary Sharpe.

Biologia Centrali-Americana. Part 87, August, 1890.—Coleoptera: vol. iv, pt. 2, by G. C. Champion, pp. 185–216, plates 8, 9; vol. vi, pt. 1, suppl., by M. Jacoby, pp. 201–208. Lepidoptera:-Rhopalocera: vol. ii, by F. D. Godman and O. Salvin, pp. 185–208, pl. 65. Rhynchota-Heteroptera, by W. L. Distant, pp. 345–352, pl. 32. Diptera: vol. ii, by F. M. Vander Wulp, pp. 177–200.

Essay on the Destruction of the Mosquito and House Fly, by William Beutenmüller, 180 pp. 2 plates. This interesting essay was presented in competition for the prize offered by Dr. Lamborn, of New York, for the best on the subject. It gives an account of the anatomy, life-history and development of the mosquito, remedies against and an account of its natural enemies. A catalogue of the described transformations of the Odonata of the world is appended.

Berliner Entomologische Zeitschrift xxxv, heft 1, 1890.—Lepidopterological notes from Sumatra, by Dr. L. Martin. The Bee genus *Dasypoda* Latr.,* by A. Schletterer; 1 pl. African Fulgoridæ,* by Dr. F. Karsch; 1 pl. *Paropioxys*, *Metoponitys*, *Anecphora*, *Paranotus*, *Eurysprosthius*, *Phædolus*, *Conoprosthius*, *Aulophorus* n. gen. Contributions to the knowledge of the Lepidopterous fauna of Amurland, iv,* by L. Graeser. Contribution to the knowledge of the singing Cicadas of Africa and Madagascar,* by Dr. F. Karsch; 2 plates; 74 species are enumerated; *Lacetas*, *Ligymolpa*, *Pæctira*, *Musoda* n. gen. Description of the colors

* Contains new species other than North American.

of the larva of *Papilio oxynius*, by Dr. J. Gundlach. Two new Buprestids from the Malayan Archipelago,* and *Agestrata lata* n. sp., by Dr. Richter. A new Buprestid from East Africa,* and a new Cetonid from East Africa,* by G. Quedenfeldt. *Akis Schweinfurthi* n. sp., by M. Quedenfeldt; from Egypt.

Annalen des k. k. Naturhistorischen Hofmuseums, v, No. 2, Wien, 1890.—The Hymenopterous group of the Sphecinæ I. Monograph of the natural genus *Sphex* L.* (sens. lat.), first part, by F. F. Kohl; 5 plates; *S. morio*, Brit. Columbia; *S. præstans*, California; *S. neovenus*, Vancouver Island; *S. excisus*, Vancouver Island; *S. clavipes*, Cuba; *S. chrysophorus*, Mexico; *S. Maximiliani*, Mexico; *S. spiniger*, Mexico, Brazil; new species from North America.

Materiaux pour la Faune Entomologique du Limbourg, Coleopteres 3e centurie, Hasselt, 1890.—Materiaux pour la Faune Entomologique de la Province de Brabant. Coleopteres, 5e centurie, Bruxelles, 1890; both by A. P. de Borre.

Bulletino della Societa Entomologica Italiana, xxii, 1890.—On a series of newly discovered secretory organs in the silk worm, by E. Vernon; 4 plates. Notes on some epizoic insects, by M. Bezzi: *Pulex tuberculaticeps* n. sp. on *Ursus arctos* L. Studies on some Formicidæ of the Neotropic Fauna, by C. Emery; 5 plates; I. Formicidæ of Costa Rica, a list of 107 species, with notes, 18 of them new species or races; II. On some new species of the genus *Pseudomyrma*, including new species from Central America, etc.; III. New American forms of the genera *Strumigenys* and *Epitritis*, etc.

Archiv fur Naturgeschichte, lvi, 1 band, 2 heft. Published Aug., 1890. Contains the bibliographical summary for Entomology for 1889, by Dr. Ph. Bertkau.

Il Naturalista Siciliano, ix, 9.—Supplement to the Review of the Milabridæ (Bruchidæ), by F. Baudi. Conspectus of the Scymænidæ collected by Lotharius Hetschko in Southern Brazil near Blumenau, by E. Reitter and F. Croissandreau.

Compte Rendu. Societe Entomologique de Belgiqque 6 Sept., 1890.—Psychidological Notes,* by Dr. F. J. M. Heylaerts. Note on the Chrysobothridæ,* by C. Kerremans; *Pseudactenodes* n. gen. Description of a new species of Elateridæ of the genus *Dicronychus* (Eschscholtz),* by G. Dumont. Descriptions of four new species of the family Chrysomelidæ,* by A. Duvivier. Notes on the Elateridæ of Chota-nagpore,* by E. Candéze. Causeries Odonatologiques, No. 2, by E. de Selys-Longchamps.

Revue Biologique du Nord de la France, October, 1890.—Materials for the Entomological fauna of Flanders; 4th century. Coleoptera,

* Contains new species other than North American.

by A. P. de Borre. Acarinæ observed in France (first list), by R. Moniez. Galls observed in the North of France, by H. Fockeu (supplementary list).

Sitzungsberichte und Abhandlungen der Naturwis. Gesell. Isis in Dresden, 1890, January–June. On mimicry, by Dr. J. Thallwitz; contains a number of references to insects.

Bulletin de la Societe Philomathique de Paris, 8e serie, II, No. 3, 1890.—Note on some fossil insects of the coal measures which bear aliform appendages on the prothorax, by C. Brongniart.

Zoologischer Anzeiger, Oct. 13, 1890.—Analytical chemical researches on living larvæ, pupæ and butterflies, by E. Verson.

Annales de la Societe Entomologique de France, 6e serie, ix, 1889–90.—Coleoptera of the interior of China,* fifth part, by L. Fairmaire; *Stenonota*, *Corægrilus*, *Saliumia*, *Phyllolytus*, *Pasurius*, *Trymatoderus*, *Merarius*, *Hemadius*, *Talmonus*, *Osnaparis*, *Sepharia*, *Semacia*, *Tebalia*, new genera. Coleoptera of the North of Africa,* by L. Bedel. New, or little-known Cucujidæ,* seventh memoir, by A. Grouvelle, one plate. Lepidopterological Notes, second part, by C. Jourdheuille (on *Eupithecia valerianata* Hüb.). New, or little-known Diptera,* 34th part, by J. F. M. Bigot (Empidi); includes the following new species from North America: *Rhamphomyia Morrissoni*, *R. pachymera*, *R. nigrita*, *R. geniculata*. Contributions to the Indo-Chinese fauna: first memoir, Cicindelidæ and Elateridæ,* by E. Fleutiaux; second memoir, Hydrocanthares,* by Dr. M. Regimbart. Voyage of M. E. Simon to Venezuela: second memoir, Coleoptera,* by A. Grouvelle, 1 plate; third memoir, Coleoptera,* by A. Léveillé, fourth memoir, Arachnida,* by E. Simon; *Pseudidiops*, *Phæoclita*, *Celidotopus*, *Rhytidicolus*, *Accola*, *Psalistops*, *Stothis*, *Euthycælus*, *Epipedesis*, *Adranochelia*, *Stichoplastus*, *Ozopactus*, *Paratropis*, *Cosmopelma*, new genera; fifth memoir, Coleoptera (Lathridæ),* by M. J. Belon. Diagnoses of new, or little-known Lycidæ,* sixth part, by J. Bourgeois. Expedition of M. Ch. Allaud into the territory of Assinie (West Africa); first memoir, Lycidæ,* by J. Bourgeois; second memoir, Dytiscidæ and Gyrinidæ,* by Dr. M. Regimbart. Expeditions of M. E. Gounelle to Brazil. Temnochilidæ,* by A. Léveillé. A new *Boarmia*, etc., by C. Blachier, one plate; notes the occurrence of *Vanessa virginiensis* Dru. (*Huntera* Fab.), in the island of Teneriffe. Contributions to the Indo-Chinese fauna; third memoir, Carabidæ,* by H. W. Bates; *Arhytinus* n. gen.; fourth memoir, Cryptocephalidæ, Clytridæ and Eumolpidæ,* by E. Lefevre. Expedition of M. C. Allaud into Assinie, etc.; fifth memoir, Eumolpidæ, by E. Lefevre. Contributions to the Indo-Chinese fauna; sixth memoir, Galerucidæ and Alticidæ,* by E. Allard. New, or little-known Diptera,* 35th part, by J. F. M. Bigot (Cyrtidi). Voyage of M. E. Simon to Venezuela; sixth memoir, Clytridæ, Lamprosomidæ and

* Contains new species other than North American.

Eumolpidæ,* by E. Lefevre; *Ephyræa* n. gen. Descriptions of a new genus, and of some new species of Phytophagous Coleoptera (Eumolpidæ),* by E. Lefevre; *Talurus* n. gen., *Alethaxius tuberculifer*, Mexico, n. sp. Entomology at the Universal Exposition of 1889, by A. Léveillé. List of the Coleoptera of Guadaloupe and descriptions of new species, by E. Fletiaux and A. Sallé; 517 species are listed. Contributions to the Indo-Chinese fauna: sixth memoir, Sagridæ, Criocerídæ, Chrysomelidæ, Hiśpidæ,* by Dr. J. S. Baly. Notice on the genus *Leptarctia* Stretch, G. H. French; describes some new North American varieties. From the bulletins of this society we note the following: *Enosis*,* Mabille (n. gen. Lepid.); *Ischyropleron*,* Bigot (n. gen. Diptera); *Sarothroceras*,* Mabille (n. gen. Lepid.); *Issacaris*,* Fairmaire (n. gen. Coleop.); *Phelister uncistrius*, Marseul (n. sp. Coleop.), Guatemala. *Choristoneura*,* Mabille (n. gen. Lepid.); *Hyda*,* *Stelhotrix*,* *Dis*,* Mabille (n. gen. Lepid.); *Malthodes ligulifer* Bergroth (n. sp. Coleop.), California; *Palibothra*,* *Papua** Ragonot (n. gen. Phycitæ). A catalogue of the French species of Cerambycidæ is published in this volume.

Annales de la Societe Entomologique de Belgique, xxxiii.—Monograph of the European species and those inhabiting neighboring countries of the genus *Tiphia* Fab.,* by H Tournier. Notes on the Perlidæ described by Dr. Rambur, by H. Albarda. Note on *Tæniopteryx nebulosa* L. and *T. prætextata* Burm., by H. Albarda, pl. 1. New Elateridæ, by E. Candeze (see Ent. News, i, p. 53). Documents for a monograph of the Ichneumonidæ of Asiatic Russia,* by Dr. J. Tosquinet. Catalogue of the Coleoptera of the family Gyrinidæ, by G. Severin; 303 species are listed. Pl. II figures the interesting Odonat, *Palæophlebia superstes* Selys.

Memoirs de la Societe Zoologique de France, iii, parts 2 and 3, 1890.—Phosphorescence in myriapods of the family Geophilidæ, by J. Gazagnaire.

Bibliotheca Zoologica II. Verzeichniss der Schriften uber Zoologie welche in den periodischen Werken enthalten und vom Jahre 1861–80, selbststandig erschienen sind. . . . von Dr. O. Taschenberg; 8th Lieferung, signatur 281–320. Leipzig, Engelman, 1890, pp. 2291–2610 (List of the publications on Zoology which are contained in periodicals and have appeared separately, from 1861–80). This "Lieferung" finishes the Hymenoptera and begins the Coleoptera.

Les Abeilles.—Organes et Fonctions, Education et Produits, Miel et Cire, par Maurice Girard, Docteur des Sciences Naturelles, etc.; Avec 85, figures dans le texte, 3e Edition Paris: J. B. Bailliere et Fils, 1890 (Bibliotheque Scientifique Contemporaine).

Zoologischer Anzeiger, Oct. 20, 1890.—The losing of liquid in butterflies after their imagonation, by Dr. J. Frenzel. The odorous glands of *Aphlebia bivittata* Brullé (Blattidæ), of Teneriffe, by Dr. H. Krauss.

* Contains new species other than North American.

Doings of Societies.

(Continued from p. 152, vol. i.)

PROCEEDINGS OF THE ENTOMOLOGICAL CLUB OF THE A. A. A. S. OF INDIANAPOLIS, 1890.—Dr. Weed presented a short paper on the habits of *Lixus concavus*.

Prof. Hargitt called attention to early observations on the Canker-worm. He also spoke of a Cecidomyia infesting the tops of *Solidago*, and also presented "Notes upon *Cermatia forceps*."

Prof. Webster spoke of the predaceous habits of *Cermatia* and its preying upon the Croton bug. Mr. Fletcher had observed the insect with Mr. Howard at Washington. Its mode of capturing the Croton bug before devouring it was remarkable. It sprang over its prey, which was thus encaged between many curved legs. He thought that Mr. Hargitt's success in keeping alive the specimens he had confined in a tin canister, was more due to the moisture thus secured than the darkness. He understood that this insect was a lover of damp places, like many other myriopods.

The Club then proceeded to the election of officers for the ensuing year, which resulted as follows:

President, Prof. Herbert Osborn, Ames, Iowa.
Vice-President, Miss Mary E. Murtfeldt, Kirkwood, Mo.
Secretary, Clarence M. Weed, Columbus, Ohio.

Prof. Osborn presented a paper on "The use of Contagious Diseases in destroying Injurious insects."

Prof. Atkinson spoke of some insects of Alabama.

Dr. Weed read a short paper on the oviposition of *Dectes spinosus* in *Ambrosia trifiida*.

Prof. Cook presented some notes on the insects of the year. He said Cut-worms and Saw-flies had been very injurious. The larvæ of *Ægeria tipuliformis* was attacked with a fungus growth like that attacking the white grub. The foliage of the quince and cherry were injured by the first brood of larvæ of Cherry Slug. Road dust was applied with excellent results. Dr. Weed presented a short paper on *Psephenus lecontei*, which, he stated, he had found on the shores of Lake Erie.

Club adjourned to meet in connection with the A. A. A. S. next year.

F. H. WEBSTER,
Secretary.

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, Oct. 2, 1890.—Messrs. J. M. Stedman, Nathan Banks and F. W. Mally, were elected members of the Society.

Under exhibition of specimens and notes, Dr. Fox exhibited a specimen of a small spider, belonging to the genus *Episinus*, which was stated by Dr. Marx to be an undescribed species.

Dr. Marx called attention to two spiders new to our fauna, one belonging to the European genus *Histopona* taken at Penn-Mar, and also received from South Florida, and the other, a new genus, of uncertain po-

sition, but possibly allied to the Agalenidæ, represented by a single specimen taken on the grounds of the Department.

Mr. Marlatt exhibited a specimen of *Trypeta æqualis* Lw., which he had bred from seed-pods of *xanthium*, and the larval habit of which he had described at a previous meeting of the Society.

Mr. Marlatt then presented a paper on "Some observations on the habits of *Vespa germanica* and *V. cuneata*." The feeding and nesting habits, particularly of the first-named species, were described. Three kinds of nests were mentioned, viz.: the very rare ærial ones, those beneath stumps or stones, and those in open ground; the latter being much the more common. Various insect and mammalian enemies of these wasps were alluded to together with the means employed to destroy the nests when their proximity to dwellings renders them objectionable. Discussed by Messrs. Howard, Schwarz, Fox, Dodge, Stedman, Marlatt and others.

Mr. Howard read a paper entitled, "A new remarkable genus of Encyrtinæ," in which he characterized a new genus and species which possesses the peculiar ramose antennæ hitherto peculiar, in the subfamily Encyrtinæ, to *Tetracnemus diversicornis* of Westwood. Mr. Howard has named the genus *Tanaostigma* and the species *T. coursetiæ* from *Coursetia* (?) *mexicana*, a rare leguminous plant, collected in the Alamos Mountains, Mexico, by Dr. Edward Palmer, and in the ovaries and stigma of which the insect breeds. Discussed by Messrs. Schwarz, Howard and Marlatt.

Dr. Marx favored the Society with an account of his recent experiments to determine whether the bite of *Latrodectus mactans* is poisonous or not. He describes the poison glands of *Latrodectus*, which are very small. He had introduced the poison in various ways into guinea-pigs and rabbits without obtaining any satisfactory results, and proposed to vary and continue his experiments to put the matter of the supposed poisonous nature of the bite of this spider, if possible, beyond doubt. Discussed by Messrs. Schwarz, Howard, Fox and Marlatt.

Mr. Ulke, who was present, gave an interesting description of the habits of *Tachys incurvus* Say, which he had found in numbers in the nests of ants, and which is the first *Carabid* to be determined as truly myrmecophilous. He also described the habits of certain myrmecophelous Staphylinidæ, and exhibited a small collection of Coleoptera made by T. Ulke, illustrating the local fauna of the Black Hills district. Discussed by Messrs. Schwarz, Howard and Marx.

In connection with the subject of local faunas, Mr. J. B. Smith's recent catalogue of the insects of New Jersey was taken up and discussed at length by the Society.

Mr. Townsend submitted for publication a generic synopsis of the first five families of the N. A. Calyptrate Muscidæ.

C. L. MARLATT,
Recording Secretary.

ENTOMOLOGICAL NEWS for November was mailed October 30, 1890.

Entomological News

AND

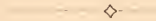
Proceedings of the Entomological Section

OF THE

ACADEMY OF NATURAL SCIENCES

OF

PHILADELPHIA.



VOLUME II, 1891.

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PHILADELPHIA:
ENTOMOLOGICAL ROOMS OF
THE ACADEMY OF NATURAL SCIENCES,
LOGAN SQUARE.

1891.

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CITHERONIA REGALIS (LARVA).

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

VOL. II. JANUARY, 1891. No. 1.

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OUR illustration represents the "Hickory-horned devil" just as he appears when in search of a place to undergo his transformation into a chrysalis. He was found August 7th, crawling on the turnpike, by Julius F. Sachse, editor of the "American Journal of Photography," who put him on a gate-post, and did him the honor of taking his picture. We are indebted to Mr. Sachse for kindly loaning us the plate for the NEWS. "Every entomologist recognizes the difficulty experienced in attempting to preserve specimens of the larvæ of moths and butterflies; even under the most favorable circumstances the prepared specimens shrivel and lose their color. Heretofore, drawings have been made of the larva, a proceeding expensive, and often unsatisfactory. It is here where photography asserts its superiority—for example, we will take the illustration: It would be an easy matter to stop out the negative, print on heavy, plain paper, and then lightly tint with proper shades in water colors."* The reproduction is by the Ives process, the engraving by the Crosscup & West Co., and the printing by P. C. Stockhausen. We hope to give illustrations in volume 2 very frequently, and trust to receive the support of those interested in Entomology so that this may be done.

* J. F. Sachse, in the "American Journal of Photography," September, 1890.

The NEWS is supplied at such a reduced figure as to make it possible for all to subscribe. We have increased its size to twenty pages, and, should the subscription-list justify it, we will make it even larger. Nothing will be left undone toward increasing its value and usefulness. Suggestions from subscribers, indicating how it may be improved for their benefit, will be thankfully received by the Committee.—ED.

PHRAGMATOBIA ASSIMILANS Walker.

BY ANNIE TRUMBULL SLOSSON.

About a year and a half ago I described ("Ento. Amer." May, 1889) the rediscovery, at Franconia, N. H., of this interesting species.

It will be remembered that, among Walker's types in British Museum, there are two forms under this name, marked respectively, A. and B. One of these forms is thus described (I will not apologise for repeating the description, as it has not been printed recently):

"*Male.*—Red. Antennæ testaceous. Thorax with brown hairs. Wings red, veins darker. Primaries slightly brown along the costa and elsewhere indistinctly sprinkled with pale brown; with two blackish dots. Secondaries brighter red, with three black dots, two in disc and one near hind border towards inner angle. Length of body, 6 lines; of wings, 16 lines." As I said in my former paper my moth, taken at Franconia, May, 1886, corresponds in every respect with this description, save that it is a female and larger.

Of the other form Walker says: "*Var.*—Primaries almost wholly brown. Secondaries with broad, blackish, submarginal stripe."

This last variety I was so fortunate as to capture this year at Franconia. It is, like the one taken two years before, a female, in fine condition, having evidently just emerged. It differs from the first one not only by its blackish, irregular border on hind wings, and its somewhat darker primaries, but in having two diffuse, dark, transverse lines on fore wings, which are but faintly suggested in the other. I do not find that this species of Walker's is represented in any collection, except that of the British Museum, where the types—two worn and damaged specimens, I am

told, are kept. Its rarity is, probably, to be attributed to its habitat and very early appearance. Both my specimens were taken in very cold weather, in a season in which few entomologists ever visit the mountain region of New Hampshire. The last one was found sitting on the floor of our piazza, near the light, just before midnight of the 24th of May. The thermometer at the time was below 48°, and there was still much snow on the mountains and in the woods.

I do not think that any one could examine these specimens of mine and doubt their belonging to Walker's species, which, as Prof. J. B. Smith says ("Can. Ent." xxii, 120), "has languished among the synonyms, ever since Dr. Packard referred it there in 1884." They are certainly not *rubricosa* Harris. Dr. Packard, himself, to whom entomology owes so much, and who is fairness and justice personified, would, I know, acknowledge this if he saw the two forms together. Prof. Smith, in the paper referred to above, recognizes the species on the ground, as he seems to intimate, of my rediscovery.

As the varietal form—with band on secondaries—has apparently received no name, being marked simply B in British Museum collections, and as it is a very distinct and strongly-marked form, I propose to call it *Phragmatobia franconia* n. var., and shall describe it more fully soon; with plate, if possible, under that name.

———o———

DESCRIPTIONS OF NEW SPECIES OF AFRICAN HESPERIDÆ.

BY REV. W. J. HOLLAND.

(Continued from vol. i, p. 156.)

4. **Proteides galua** n. sp.

Upperside: Ground color dark brown, fading into slightly paler fuscous at the apex of the primaries. The thorax and the base of the wings clothed with a vestiture of greenish brown hairs. *Primaries* ornamented by a series of subapical spots, of which the one furthest from the costa is the largest. The outer third of the cell is occupied by a large trapezoidal spot. Near the junction of the second and third median nervules is a much smaller subquadrate spot, followed in the next neural interspace, between the first and second median nervules by a very large sub-

trapezoidal spot, which is succeeded between the first median nervule and the submedian vein by a small triangular spot. This last spot is followed upon the same neural interspace by a still smaller spot lying near the base, and partly concealed by the hairy vestiture. *Secondaries* ornamented by a band of five yellow spots separated by the nervures and traversing the wing for about half its diameter in a line nearly at right angles with the posterior margin. The three outermost of these spots gradually diminish toward the interior, the last two are much longer, and the band has thus imparted to it a sinuate appearance. There is also a small yellow streak in the cell partly concealed beneath the vestiture of the wing. All the spots in the anterior wing are yellow hyaline, except the small triangular spot near the base above submedian vein. This spot and all the spots in the secondaries are opaque. The fringe of the secondaries near the anal angle is white.

Underside: The *primaries* are rich maroon, interrupted on the costa at the end of the cell by a pearly gray patch, and by the hyaline spots which reappear as on the upper surface. The apex is lavender, with three oval spots of maroon on the outer margin. The posterior margin is broadly ashen gray; the costa at the base is white. The *secondaries* are dark lavender-gray, ornamented at the base by an oval spot and in the middle by a very large and irregular spot of deep maroon margined with pinkish gray; the palpi are white beneath. The thorax and abdomen are dark brown; the antennæ are dark above and light beneath, as in most of the species of this genus.

The female does not differ materially from the male, except in being larger, and the markings more sharply defined upon the underside.

Hab.—Valley of the Ogove. Types in coll. Holland.

I give this species the name *Galua* after the tribe of the Galwas.

5. **P. benga** n. sp.

Upperside: The body and wings are uniformly brown, slightly paler on the outer margin; the fringes of the secondaries are narrowly white. The middle of the primaries is adorned by a broad subquadrate band of hyaline yellow divided into three spots by the nervures. Of these three the uppermost, situated at the end of the cell, is outwardly bifid, with the tips of the bi-

furcation rounded. A round, velvety, sexual band occupies the centre of the secondaries in the case of the male.

Underside: The lower side of the wings is as the upper, save that the costa of both the primaries and secondaries is washed with ochreous. Palpi pale gray beneath.

The female does not differ from the male, except in having a small lanceolate hyaline spot on the middle of the upper side of the submedian vein in the primaries. Expanse ♀, 45 mm.; ♀, 48 mm.

Hab.—Ogove Valley, Benita. Type in coll. Holland.

I name this species after the Benga, a tribe on the mainland near Benita.

6. **P. balenge** n. sp.

One of the largest species of the genus.

Upperside: Head, thorax, abdomen and wings, rich dark brown throughout, only fading a little at the apical extremity of the primaries into paler brown. *Anterior* wings ornamented as follows: at the costa, about one-third from the tip of the wings, there is a subapical series of four small white hyaline spots, the first of which is short, the second elongated, the third like the first, and the fourth, which is slightly removed from the rest, small and quadrate. There are, further, four large yellow hyaline spots, the largest, which is quadrilateral at the end of the cell, and the other three, which are subquadrate, arranged in a series upon the limbal area, on the interspaces between the median nervules. Upon the *posterior* wings there is a triangular spot of the same color as those upon the disc of the primaries located beyond the end of the cell.

Underside: The ground color is fuscous, clouded at the base of the primaries and upon the secondaries by dark brown. The spots of the upper surface all reappear upon the lower side, and there are in addition the following markings: Upon the primaries at the base upon the costa a white spot, beyond it about one-third of the distance from the base a white mark, at the middle of the costa above the large quadrate hyaline spot in the cell two small sagittate white marks, and at the apex a series of poorly defined lunulate marks also white; upon the secondaries there are two very small and indistinct white spots at the base, one small and sharply defined spot on the disc between the costal and subcostal

nerves, a similar spot in the cell, and one like it between the second and third median nervules. The fringe at the anal angle is narrowly white; the underside of the palpi is cinereous, and the lower side of the abdomen is annulated with white. Expanse of wings 68 mm.

Hab.—Benita. Type ♀ in coll. Holland.

I name this species after the Balenge, a tribe found near Benita.

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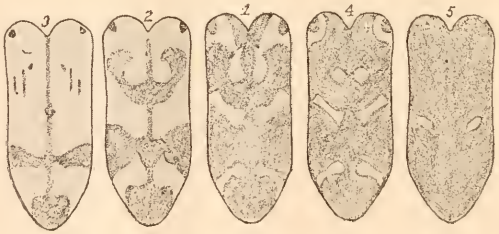
TRICHODES ORNATUS Say.

BY GEO. H. HORN, M. D.

In consequence of some correspondence lately had in reference to this insect and the apparent incredulity that two forms seen, which differ less than any two figures on the subjoined illustration, were merely varietal differences, I have thought it desirable to select a few forms illustrative of variation in two directions from the typical form.

The thorax varies in color from blue to green, through brassy and cupreous. The elytra are usually deep blue or blue-black, but may be bright blue or green. The pale bands are of a Cicindeloid type, and may be bright yellow or orange-yellow. The legs are blue, the anterior four tarsi pale, but those specimens with the wider bands of yellow often have pale tibiæ also.



On the accompanying illustration are five specimens selected from my series showing the extent of variation in the markings. The central figure is the common form in the region from which Say obtained his specimens, near the base of the Rocky Mountains. The humeral and the median band are often united along the outer side. Fig. 2 represents a form quite usual in Owen's Valley, Cal., and western Nevada, the yellow being quite equal to the blue color. Fig. 3 shows a form from Utah in which the

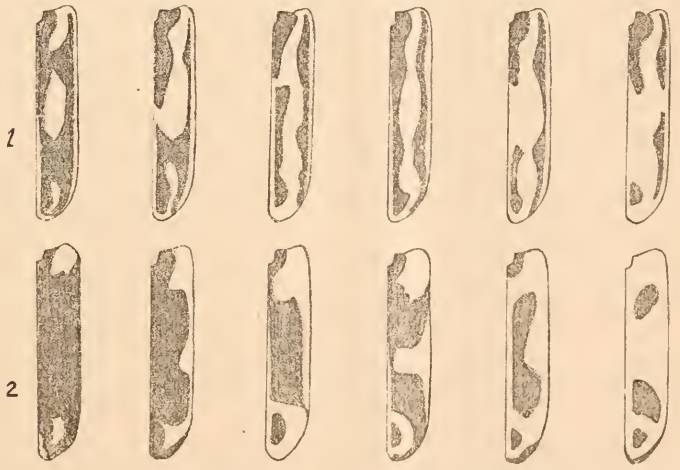
humeral and median bands have coalesced into a large pale area enclosing but slight trace of the blue in the form of a spot and two short lines. This is the most extreme form I have yet seen in the direction of the expansion of the yellow bands.

Fig. 4 represents a contraction of the bands, the humeral breaking up, while the other two do not reach the lateral margin, several specimens from Oregon illustrate this. In fig. 5 the elytra are entirely blue or green, with a small post-median spot of obliquely oval form. The spot varies in size and position, and from the indications I have no doubt that specimens will occur with elytra entirely blue. These one-spotted specimens must not be mistaken for *bisignatus*, which has quite a large spot of red color contiguous to the margin and other specific characters.

As a rule, the hotter the climate in which the specimens were native, the greater the extent of the yellow color; those represented by fig. 3 are from the extreme southwest of Utah. In colder, and especially damper climates, the blue color predominates; figs. 4 and 5 are from Oregon, although typical forms occur abundantly there also.

The variety *tenellus* is from San Diego and Fort Yuma, in California. Its form is more slender than normal, and the markings are as in fig. 2, although a little wider, showing less blue.

In continuation of the same idea I reproduce the illustrations



of the variations of the elytral markings of two species of Psoa published by me in the "Trans. Am. Ent. Soc." 1886, p. xv.

The upper line represents *P. maculata;* the lower, *P. quadrisignata.* The genus Psoa, although belonging to the Bostrichinæ, resembles Trichodes in form, the elytra having a ground color of blue or green, the markings yellowish to red. The markings of *quadrisignata* are suggestive of *Trichodes ornatus* in the fourth figure, while *maculata* is rather of a vittate type.

It is hoped that these notes and figures will be at least cautionary to those who see in slight differences of the metallic surface lustre, or the extent of markings a sure indication of a new species.

ELEMENTARY ENTOMOLOGY.

Seventh Paper.—The Abdomen—Internal Anatomy.

The third and last region of the body is the abdomen. The abdominal segments are not so closely united to each other as are the segments of the head and the thorax; they consequently possess a freedom of motion between themselves not to be found in the two former regions of the body.

The abdominal segments sometimes receive the special name of *urites.* Their typical number is eleven (Packard), but in different insects varies from three to eleven.

Besides the three pairs of jointed legs, situated near the front end of the body, and which correspond to the (thoracic) legs of the imago, many larvæ have other thicker, fleshy legs, termed *prolegs*, *prop-legs*, or *false legs.* The prop-legs are not jointed, and end in a circle of minute hooks; they are placed on that part of the larva corresponding to the abdomen of the imago, in which state they are not usually represented. The nymphæ of those insects which undergo only an incomplete transformation have six jointed, thoracic legs. Of the larvæ that undergo a complete transformation, some have no legs, as maggots; others have six jointed, thoracic legs; others still, as caterpillars, have six jointed, thoracic legs, and from ten to sixteen jointless, abdominal prop-legs. Some of those insects which do not pass through any transformation have jointed abdominal legs; in this particular they differ from the definition of an insect as given in the first paper.

In many insects which have an incomplete transformation, there is in the nymph a pair of jointed appendages to the last

abdominal segment. These are represented in the corresponding imagos, in which state they much resemble antennæ; they are called *anal forceps*, *cerci*, or *caudal setæ*. Male insects have sometimes one or two pairs of jointless *claspers* at the apex of the abdomen. Female insects may have the abdomen furnished with a sawing, piercing, or boring organ—the *ovipositor*, by which the eggs are implanted into various substances. A *sting* is an ovipositor modified to form an organ of defence; it exists in females only, of some insects. *Cornicles*, *nectaries*, *siphuncles*, or *honey tubes*, are small tubes, two in number, found on the abdomen of plant-lice and certain other insects, through which a liquid ("honey-dew") is secreted.

With this we complete our sketch of the external anatomy of insects. Their internal anatomy is hardly an elementary study, owing to its difficulty, but from its importance it cannot be overlooked here.

If a cross-section were made of the body of a cat, or other back-boned animal, the relative positions of the main nerve (spinal) cord, the main blood vessel (aorta) and the alimentary canal would be seen to be as follows. The most dorsal of the three would be the nerve cord; below it, that is, on its ventral side, would be the main blood vessel; below the latter would be the alimentary canal, the most ventral of the three. These positions would, of course, be equally true for the human species.

But the relative positions of these three great organs in Arthropods (and consequently in insects) is different. Here the main blood vessel is the most dorsal, below it is the alimentary canal, below the latter is the nerve cord, which is here the most ventral of the three.

The body wall of an insect is made up of three (microscopic) layers,—

1. An outer chitinous layer, or *cuticle*.
2. A median cellular layer, or *hypodermis*.
3. An inner layer, or *basal membrane*.

The alimentary canal has its beginning at the mouth opening and extends as a more or less convoluted tube, divided into various parts, through the length of the body, to its external opening (*anus*) in the apex of the abdomen. The principal parts of the canal are the *pharynx*, situated within the head, connected

by the slender *œsophagus* with the *crop*, situated in the thorax, or more posteriorly. Following the crop is the *proventriculus*, or *gizzard*, a grinding organ with strong muscular walls. The *stomach*, *ventriculus*, or *chylific ventricle* succeeds, situated in the abdomen. After this is the *intestine*, which may sometimes be subdivided into three parts, the *ileum*, or small intestine (immediately following the stomach), the *colon*, or large (thicker) intestine, and the *rectum*, or terminal part. The crop and gizzard are sometimes absent.

The alimentary canal is composed of three coats, the outer, or *peritoneal*, the middle, or *muscular*, and the inner, or *mucous*. The canal is held in place by retractor muscles, but principally by exceeding numerous branches of the main tracheæ (Packard).

The appendages of the alimentary canal are the *salivary*, the *cæcal*, and the *anal* glands, and the *malpighian vessels*. The salivary glands open near the mouth. In some larvæ (caterpillars) they are the source of the silk. The cæcal glands open into the stomach ; their secretion resembles the pancreatic secretion of backboned animals. The anal glands open into the hind part of the intestine; their secretion is usually offensive and constitutes an organ of defense. The malpighian vessels are long, slender tubes opening into the fore part of the ileum; they are analogous to the kidneys of higher vessels. Insects have no true liver, its functions being performed by the walls of the stomach (Siebold quoted by Packard).

The circulatory system consists of a *dorsal vessel* or heart, an aorta, and a few branches of the latter. The heart is a jointed organ of a varying number of chambers, one behind the other, corresponding in position to the segments (of the fore part of the abdomen) in which they are situated. The chambers are separated by valves permitting motion in but one direction—from behind forwards. A pair of lateral valves in each chamber allows entrance, but prevents exit. The heart is contained in a cavity—the *pericardial sinus*, separated from the other organs by a membrane—the *pericardial diaphragm*, pierced by many openings. At its fore end the heart opens into the aorta, a simple tube running to the head where it may or may not divide into short branches. In either case the vessels apparently end in the head as open tubes. The circulation is believed to be as follows: By the successive contraction of the chambers of the heart, the

blood is forced forwards from the hind into the fore chambers and thence into the aorta. When the blood reaches the end of blood vessels in the head it passes from them directly into the body cavity, bathing the internal organs, flowing in regular currents, but not enclosed by walls. Finally, it passes through the openings of the pericardial diaphragm, and enters the heart through the lateral openings of the chambers.

The blood consists of a usually colorless, or sometimes yellowish, greenish, or reddish liquid, in which float colorless, sometimes nucleated corpuscles. P. P. C.

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Additions and Corrections to the list of Dragonflies (Odonata) of Manchester, Kennebec Co., Maine.

BY MISS MATTIE WADSWORTH.

(See ENTOMOLOGICAL NEWS vol. i, pp. 36, 55.)

1*a*. **Calopteryx æquabilis** Say.

1890, June 21, one ♂ taken near brook.

6*a*. **Enallagma ebrium** Hagen.

A single ♂ taken several years ago, recently identified.

6*b*. **Enallagma civile** Hagen.

One ♂, also recently identified.

16*a*. **Neuræschna vinosa** Say.

1890, August 11, one ♂ flying over brook.

18*a*. **Gomphus** (Undetermined species).

One ♀ taken several years ago.

32. This species given as "**Cordulia** new? species" is **C. cynosura** variety.

1890, June 21, one ♀, one ♀, near brook. June 28, one ♂ in pasture.

37*a*. **Plathemis trimaculata** De Geer.

1890, June 18, 21, ♂ ♂ seen near woods; 28, one ♀ in woods; June 30, July 2, 18, 29, near woods, brook and roadside. August 4, one ♀ in woods.

43. **Diplax** new? species is **D. ornata** Ramb.

1890, July 9, one ♂ by roadside; August 6, one ♂ in meadow; August 7, one ♂, three ♀ ♀ in pasture; August 12, one seen flying; August 20, one ♂ in pasture.

44. **Diplax semicincta** Say.

One ♂ taken some time ago, recently identified.

The total number of species from Manchester known to me, including the undetermined *Gomphus*, is now fifty species. Of these two are Calopterygina, eleven Agrionina, seven Æschnina, eight Gomphina, nine Cordulina, thirteen Libellulina.*

As before each species has been identified by Mr. Philip P. Calvert, of Philadelphia, who has given me much assistance in the study of the Odonata.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive item of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

☞ **See change of wording in notice of Identification of Insects.**

WE give as a supplement to the present number an exchange list, which will save the entomologist the trouble and labor of making out written lists, either of duplicates or desiderata, to send to correspondents. Numbers are also unsatisfactory, as they have to be copied from a list and referred to a list by the recipient. The editor has often been in need of such a list, and thus it originated. All that is necessary is to mark the list and put it in an envelope and send it on its way, hoping thereby to receive many fine additions to one's collection.—ED.

ALETIA ARGILLACEA Hüb.—*Apropos* of a note on this insect in the December number of ENT. NEWS (p. 154) by Prof. Killicott, I wish to state that *argillacea* has been very rare the past season, if indeed it has appeared at all, at Buffalo, N. Y. About October 1st, when it should be most abundant, I was frequently out after moths, but failed to detect a single example of this species.—E. P. VAN DUZEE.

We have recently heard from Mr. Wm. H. Ashmead, who writes from No. 11 W. Alvensleben Strasse, Berlin, that he is having a good time studying the large collections in the Museum. "The collection of exotic Lepidoptera is simply grand, and, for a lepidopterist, is simply a paradise. The Hymenoptera, especially in the micros, are poorly represented, but I find a good many interesting forms in what they have among the macros."

* In a letter dated November [11th, 1890], accompanying the MS. of the above "Additions," Miss Wadsworth writes: "Some species quite common before have been much less so this season, particularly *Anax junius*, which, in 1889, was one of the most common species. This year I saw but one specimen, and that on June 30th." So far as my observations go, this remark is also true for the relative abundance of *junius* in Delaware County, Pa., in 1889 and 1890.—PHILIP P. CALVERT.

Mr. C. W. Johnson's report of capture of *Neonympha Mitchellii* at Dover, N. J., in rocky and hilly territory, leads me to make a correction as to its habits in Michigan. When first found I took only a few specimens, and all on a rather dry meadow, near a wet meadow and marsh. Since then I find that they are much more common in the marshy portion of the territory referred to. I have taken many specimens of *Neonympha Canthus*, *N. eurytris*, *N. sosybius* and *N. Mitchellii*,—the *sosybius* in Florida—and find *Mitchellii* much closer to *sosybius* in habits of flight than to either of the others. It flies low, for short distances, in a weakly manner, and is best started by beating up, or by walking rapidly and noisily through the grass. *Sosybius* is stronger and quicker on the wing, is a more "artful dodger," and flies a little farther. If there is more than one brood of *Mitchellii* in a season, the last one begins to fly July 1st. I have taken it from July 1st to 10th. As far as I can tell it comes in quickly and goes off the field rather abruptly after a short period of life.

I. N. Mitchell.

Development of Dibolia ærea.—The habits of this little beetle appear to be familiar, but the following notes on its period of development may be of interest: The larvæ were found abundantly on Plantain (*Plantago major*) at LeClaire, Iowa, about Aug. 1, 1890. They make an opening in the epidermis of the leaf which they enter, gradually eating their way. Sometimes a larva makes a tunnel, then goes back and starts a branch to it. If the leaf becomes too dry, some will leave and enter a fresh one, but in ordinary cases they remain in their leaf until they are ready to pupate. When full grown they are 3–4 mm. in length. The period of pupation is fourteen days. Up to the twelfth day the pupa is yellow, on that day a slight coloring of the eyes is noticed, the following day the tarsi become black, and the fourteenth day the beetle appears, becomes entirely black and begins to move about. Eight beetles lived five days after emergence without food; after Plantain leaves were introduced they ate freely.—P. H. Rolfs, Ames, Ia.

I have observed this past season an unusual number of the larvæ of *Sphinx quinquemaculata* on the tomato vines. In the Summer of 1881 they were a veritable pest in this locality, but since then they were scarce, only an occasional isolated specimen being found until the late Summer, when they were again abundant. The country people are very much afraid of them, and one frequently hears extravagant tales of horrible suffering from the effects of their sting.

I find the observations made relative to the limited range of *Satyrus alope* (January number) corroborated by my own knowledge of the species in this locality as I have observed the same individuals in the same locality until they died.

On August 12th I took a larva of *C. regalis* feeding on a plum tree; I fed it plum leaves for a week when it pupated. This is, to me, a new food-plant for *C. regalis*, as I have never found it on any thing but the walnut.—Stephen Baldy, Catawissa, Pa.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Twelve names, if possible, will appear in each issue of NEWS, according to number. Address packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

H. MEESKE.—1, *Cicindela 16-punctata;* 2, *Cicindela vulgaris*, var.; 3, *Macrodactylus subspinosa;* 4, *Cicindela pusilla*, var. *cyanellus;* 5, *Epitragus canaliculatus;* 6, *Necrophorus marginatus;* 7, *Chrysochus auratus;* 8, *Trox sonoræ;* 9, *Hippodamia convergens;* 10, *Chrysomela scalaris.*

E. WILKINSON.—2, *Carpophilus palilpennis;* 4, *Sphærophthalma orchis;* 5, *Bombus pennsylvanicus* ♂; 6, *Orthosoma brunneum;* 7, *Necrophorus americanus;* 8, Solpugidæ (belongs to); 9, *Allorhina nitida?* 10, *Eleodes longicollis;* 11, *Hippomelas cælatus;* 12, *Psiloptera dilaticollis.*

CHAS. FUCHS.—1, *Eleodes hispilabris;* 2, *E. carbonaria*, smooth var.; 3, *E. quadricollis* ♀; 4, *E. obsoleta*, var.; 5, *E. carbonaria*, var. *soror;* 6, *E. extricata;* 7, *Discogenia marginata;* 8, *Eleodes cordata;* 9, *E. consobrina;* 10, *E. cordata;* 11, *E. parvico lis;* 12, *E. obscura.*

G. D. B.—1, *Catocala concumbens;* 2, *Ctenucha virginica;* 3, *Microcœlia obliterata;* 4, *Heliophila unipuncta;* 5, *Hadena sputatrix;* 6, *Agrotis messoria?* 7, *Plusia contexta;* 8, *Eustrotia carneola;* 9, *Hypena* sp.; 10, *Tetracis crocallata;* 11, *Pyrophila pyramidoides;* 12, *Metanema quercivoraria.*

From Haddonfield, N. J., wingless females of a Geometrid moth, perhaps genus *Anisopteryx.*

Entomological Literature.

BULLETIN FROM THE LABORATORIES OF NATURAL HISTORY OF THE STATE UNIVERSITY OF IOWA, vol. ii, No. 1, contains the continuation of the monograph entitled, "The Pselaphidæ of North America, by E. Brendel, M.D., and H. F. Wickham (concluded), 85 pp., 3 plates, 63 figs. Full descriptions with synoptic tables of the species are given.

THE ENTOMOLOGIST, November, 1890.—Additions to the British List of Deltoids, Pyralids and Crambi since 1859 (with plates), by Richard South. The sexes of LEPIDOPTERA, by T. D. A. Cockerell. Contributions to the Chemistry of Insect Colors, by F. H. Perry Coste. Entomological notes, captures, etc. Doings of Societies.

THE ENTOMOLOGIST'S MONTHLY MAGAZINE, November, 1890.—How do Coccids produce cavities in Plants? by W. M. Maskell. Notes on the LEPIDOPTERA of Digne (Basses Alpes), by A. H. Jones. Entomological

notes from Aden and Colombo, by J. J. Walker. Notes concerning Psocus *quadrimaculatus* Latreille, of which *Ps. subnebulosus* Steph. is a synonym, by Robert McLachlan. Aculeate Hymenoptera collected by J. J. Walker at Gibraltar and in North Africa, by Edw. Saunders. Notes and Captures, Doings of Societies, etc., finish the number.

Transactions of the Royal Society of South Australia vol. xiii, pt. 1.—Descriptions of Australian Lepidoptera, pt. 1, by E. Meyrick. Further notes on Australian Coleoptera, by Rev. T. Blackburn.

A Contribution Toward a Knowledge of the Mouth Parts of the Diptera, by Prof. J. B. Smith (from Trans. Am. Ent. Soc.). This is an interesting essay of twenty pages with twenty-two figures; very little has been written on the anatomy of the mouth parts of Diptera, and Prof. Smith's paper is an important addition to the literature of the subject. He states that he studied each organ in its entirety, in its relation to others, and in its development, and that the studies were morphological rather than anatomical.

The Entomologist's Monthly Magazine, December, 1890.—Notes on the British species of the genus *Anthonomus*, with a description of a species new to Britain, by Rev. Canon Fowler. Hymenopterological notes, by P. Cameron. Description of a new species of the genus *Phanæus*, by B. S. Nevinson. Trichoptera observed in the Exmoor District in Autumn, by R. McLachlan. Observation on some British and exotic Coccidæ, by J. W. Douglas. Descriptions of two new species of *Euplœa* from the South Sea Islands, by Hamilton H. Druce. Great flight of *Culex*, *Tipula* and *Tetramorium* in New Zealand, by W. W. Smith. Meyrick's Pyralida of Europe, by Prof. C. H. Fernald. *Trypeta bigelo-viæ* n. sp., by T. D. A. Cockerell. On a new species of *Tomoderus* from Japan, by G. C. Champion. Note on the genus *Dischidus*, id. *Bidessus unistriatus* in East Norfolk, id.; *Anisotoma triepkei*, etc., at Aviemore, by R. W. Lloyd. *Danais archippus* at Eastbourne, by A. H. Clarke. *Chærocampa nerii* near Dartmouth, by Henry F. Owen. Description of the larva of *Phoxopteryx upupana*, by B. A. Bower. Insects in the Scilly Isles, by C. W. Dale.

Bulletin No. 11, November, 1890, Iowa Agricultural Experiment Station. The Potato Stalk Weevil (*Trichobaris trinotata*). The Apple Curculio (*Anthonomus 4-gibbus*). A new Currant Borer (*Hyperplatys aspersus*). The life-histories and remedies against these injurious insects are given (illustrated). These entomological articles are by Prof. C. P. Gillette.

We have received the following from Prof. C. V. Riley, U. S. Entomologist: Insecticides and Means of Applying them to Shade and Forest Trees, by C. V. Riley, M.A., Ph.D. The Insectivorous Habits of the English Sparrow, by C. V. Riley. Insects Affecting the Hackberry (various species of *Celtis*), by C. V. Riley. These entomological papers are all from various government publications.

Annals of the New York Academy of Sciences, vol. v, Nos. 456. —Coleopterological Notices, by Capt. Thos. L. Casey. This is the continuation of a lengthy paper containing descriptions of many new species (pp. 97 to 198). Catalogue of Lepidoptera found within fifty miles of New-York City, with their food plants, by Wm. Beutenmüller. This is a useful list, as it considers Rhopalocera and Heterocera, both macro and micro, and will be a guide to collectors in the territory covered.

Memoirs and Proceedings of Manchester Literary and Philosophical Society, vol. iii, fourth series. Hymenoptera Orientalis, or contributions to a knowledge of the Hymenoptera of the Oriental zöological region, by P. Cameron, pt. 2, pp. 239–284, 2 plates; contains new genera and species.

Opuscula Entomologica, C. G. Thomson, xiv, Fasciculus. Lund, 1890; xlii, Cremastius and allied genera;* *Demophorus* n. gen.; xliii (synopsis of the genus *Bassus* Fab.*), *Zootrephus*, *Promethus*, *Homoporus*, n. gen., xliv, Contribution to the Insect Fauna of Sweden,* Coleoptera and Hymenoptera.

Entomologiske Meddelelser udgivne af Entomologisk Forening ved Fr. Meinert. Andet Bind, Hefte Tredie [and] Fjerde. Kjobenhavn, 1890.—This publication being in Danish, is beyond the Reviewer. Hefte Tredie (part 3) contains a biologic and anatomic paper on *Anthophora parietina* Fabr. by C. Wesenberg-Lund, 1 pl.

L'Auxiliaire, Organe libre de la Federation des Apiculteurs Francais, Amiens 2e Annee, Nouvelle serie, Nos. 2–9, February–September, 1890.—The issues of this paper contain many articles on all subjects of interest to those engaged in Bee culture, as well as on other topics not relating to entomology. Of entomological articles other than those on apiculture, we note one on "The Flies of the Pears" (*Cecidomyia nigra* and *Sciara piri*) by E. André.

Compte-Rendu. Societe Entomologique de Belgique, 4 Oct. 1890. —Note on the Cicindelidæ of Chota-Nagpore,* by E. Fleutiaux. Note on some Spherionidæ,* by A. Lameere. First note on the Coleoptera collected by M. Ed. Van Beneden in South America, by P. Pelseneer.

Revue Biologique du Nord de la France, 3e Annee, No. 2, November, 1890.—Notes on the Thysanoura, iv, by R. Moniez. Materials for the Entomological fauna of Flanders, 4th century, Coleoptera, by A. P. de Borre.

Annalen des k. k. Naturhistorischen Hofmuseums, v, No. 3, Wien, 1890.—The Hymenopterous group of the Sphecinæ. I. Monograph of the natural genus *Sphex* L. (sens. lat.) II. Abtheilung, by F. F. Kohl (see Ent. News, vol. i, p. 164). Ichneumonid studies,* by Dr. J. Kriechbaumer; *Apechoneura*, *Opisorhyssa*, *Rhyssonota*, *Dyscidopus*, new genera of Pimplidæ; *Thalessa? histrio*, White Mountains; *Opisorhyssa flavopicta*, N. Amer.?; new species from North America.

* Contains new species other than North American.

Le Naturaliste (Paris), Nov. 15, 1890.—Habits and Metamorphoses of *Larinus ursus* Fab., by Capt. Xambeu. On the horn of a chrysalis of *Deilephila euphorbiæ*, by P. Chretien; with woodcuts.

A Synonymic Catalogue of Neuroptera Odonata, or Dragonflies. With an appendix of fossil species, by W. F. Kirby, F.L.S., F.E.S., etc. London, Gurney & Jackson; Berlin, R. Friedländer & Son, 1890, 8vo, pp. ix, 202. Price, 16s. ($4.00)

This important work, although published early in September, 1890, was not seen by the reviewer until Dec. 6, 1890. A review of it has been published (in French) by Baron de Selys Longchamps in his "Causeries Odontologiques," No. 2 (Compte-Rendu. Soc. Ent. Belg., Sept. 6, 1890, pp. clvii–clxiv; see Ent. News, vol. i, p. 164), which has been seen by the present reviewer.

Pages 1–164 of the catalogue contain the living species, giving the synonymy, the chief bibliographical references and the general distribution of each species. Appendix I, pp. 165–176, does the same for the fossil species. Appendix II, pp. 177–187, comprises additions and corrections. A general index of all the specific and generic names, both accepted and synonymic, completes the work.

The following table shows the classification adopted, with the number of genera and species listed, including the additions and corrections, as collected by the reviewer:

	Living species throughout the world.		Fossil species throughout the world.		Living species in N. America north of Mexico.	
	Genera	Species	Genera	Species	Genera	Species
Family 1. Libellulidæ.						
Subfamily 1. Libellulinæ.....	102	503	3	26	16	67
" 2, Corduliinæ.....	22	144	1	2	7	37
Family 2. Æschnidæ.						
Subfamily 1. Gomphinæ.....	....	....	10	30	....	....
Division 1. Gomphina	36	228	....	....	8	48
" 2. Cordulegastrina.	15	38	....	....	4	9
Subfamily 2. Æschninæ.....	25	112	2	12	6	24
Family 3. Agrionidæ.						
Subfamily 1. Agrioninæ..... (= Calopterygina auct.)	33	234	3	6	2	18
Subfamily 2. Cœnagrioninæ...	....	....	7	27	....	....
Div. 1. Pseudostigmatina....	5	20	....	....	....	....
" 2. Normostigmatina....	77	561	....	....	12	56
	315	1810	26	103	55	259

Baron de Selys has already pointed out that Mr. Kirby makes a number of changes in the names of well known genera and species, chiefly on the ground of priority. To these Baron de Selys strongly objects; his views

are entirely in accord with those of the present reviewer, who thinks that they will be adopted by Odonatists generally. The chief changes, so far as they affect North American dragonflies, are as follows: the first in each pair of names being the one used by Mr. Kirby. *Sympetrum* = *Diplax*, *Lib. lydia* Dru. = *trimaculata* DeGeer, *Lib. vibrans* Fabr. = *lydia* Dru. Hag., 1851), *Diastatomma* = *Ophiogomphus*, *Aeshna* (without *c*) =.*Gomphus*, *Aeschna* (with *c*) retained = *Aeschna*, *Agrion* = *Calopteryx*, *Micronympha* = *Ischnura*, *Cœnagrion* = *Agrion*. Even if it be a fact that many of the changes here noted rest on a priority of a few years, inasmuch as the names to be supplanted have been in general use for many (in some cases over fifty) years, it seems to the reviewer totally unnecessary to change them. The rule of priority may be very good in the abstract, but when it conflicts with that better rule of long and common use, it is more to be honored in the breach than in the observance. For himself, the reviewer proposes to continue using the old nomenclature until more convincing reasons for changing are presented.

In spite of these serious faults, this Catalogue is a most useful and valuable work. It furnishes us, in a commodious form, with a key to our present knowledge of the Odonata, both living and fossil. The most excellent index at the end of the volume affords a ready means of locating any name which has been proposed in this group of insects. Finally, no student of the Odonata can do without it.—Philip P. Calvert.

Entomologische Nachrichten, xvi, No. 19, October, 1890.—New Ichneumon flies from north and middle Germany,* by Dr. Kriechbaumer. On *Hylemyia penicillaris* Rnd. and some similar species, by P. Stein. *Petecium Drakei*,* n. sp. of the Coleopterous tribe of the Stomidæ, by G. Quedenfeldt; from Matto-Grosso, S. America. No. 20, October, 1890. —Entomological notes, by Prof. Dr. F. Thomas (on *Chionea*, *Niptus*, *Chrysopa*, *Leiosomus*, *Byturus*). On *Ornithomyia turdi* Latr., and on the author of *Bibio anglicus*, V. v. Roder. Victor Antoine Signoret, by L. Fairmaire. No. 21, November, 1890.—A contribution to the German Hymenopterous Fauna,* by C. Verhoeff.

Doings of Societies.

A Regular Meeting of the Entomological Section of the Academy of Natural Sciences was held Oct. 23, 1890, Director Dr. Horn in the chair. Members present: Ridings, Laurent and Skinner. Associates: Fox, Westcott and Dr. Castle. Dr. Stephens, of Plymouth, Mass., visitor. A paper entitled, Mouth Parts of Diptera, by Prof. J. B. Smith, was presented and referred to the Publication Committee. Dr. Horn referred to his studies on Throscidæ and Eucnemidæ for the Biologia Centrâli-Americana. The material had been received on April 15th and the corrected proof returned October 15th. The completed work will make sixty-five quarto

* Contains new species other than North American.

pages. He also spoke of a contemplated work on Agrilus. Mr. Ridings mentioned the fact that whiskey attracted ants, and that they were intoxicated by it. Dr. Horn spoke of the habits of *Xyleborus pyri*, a beetle which bores in fruit trees. He had found *pyri* identical with the European *X. dispar*, having compared them side by side. A number of fine additions have been lately made to the Cabinet of the Society, among them forty-two specimens of Noctuidæ, representing thirty-one species new to the collection, presented by Mrs. A. T. Slosson. A number of fine Hesperidæ from Mr. Martindale, and a collection of Hymenoptera and Diptera from Mr. Ernest Seeber, all collected in his own yard.

Meeting held Nov. 27, 1890. Director Dr. Horn presiding. Members present: Martindale, Laurent and Skinner. Associates: Welles and Johnson. Dr. Horn described the results of his studies on *Arœoschizus* and *Cryptohypnus*. The genus *Arœoschizus* is composed of small and rare beetles about the size of ants, and look much alike. The forms of head, elytra, etc , were described and illustrated. *Cryptohypnus* is represented by small Elater-like beetles which have been in confusion on account of the characters not being well understood. The differential diagnoses based on anatomical differences were considered. The relationships of the European and American species were discussed. Dr. Horn did not consider any of them identical, but parallel species. He also stated that he had discovered two new species of *Eleodes* with long tails to the elytra, although belonging to different groups. One had a peculiar male character of the tibia which was described. The nomination of Mr. Charles S. Welles as a member was read. Mr. David Jayne Bullock was duly elected a member of the Section.

Meeting held Dec. 8, 1890. Dr. Horn in the chair. Members present: Martindale, Blake, Laurent, G. B. Cresson, Skinner. Associates: Calvert, Welles, Dr. Castle, Fox. The Director announced the death of Dr. Samuel Lewis. Mr. Martindale exhibited his new form of cabinet drawer for LEPIDOPTERA with the upper and underside of glass, and having movable strips for pinning on the specimens. This gives the opportunity to examine the underside of the specimens without removal (see NEWS, vol. i). Mr. Calvert exhibited a female of *Libellula pulchella* with an imperfectly developed wing. A drawing on the blackboard was made illustrating the puculiarities in venation. The specimen had been loaned to him by Mr. C. W. Johnson, and was taken in the upper part of the city. He also stated that in 1865 Mr. Scudder reported dragonflies in great abundance at Hermit Lake, in the White Mountains. On a visit there, himself, he did not find them nearly as plentiful as stated by Mr. Scudder. It was of interest to compare the different collecting experiences after an interval of twenty-five years. Kirby's Catalogue of the Odonata of the world was exhibited and commented on. The question of priority was discussed as set forth in the list. Dr. Skinner exhibited some fine specimens of entomological photography, the work of Mr. J. F. Sachse, editor of the "American Journal of Photography." The following were elected

officers to serve for the coming year: Director, Dr. G. H. Horn; Vice-Director, H. C. McCook, D.D.; Treasurer, E. T. Cresson; Recorder, Henry Skinner, M.D.; Publication Committee, Philip Laurent and Henry Skinner, M.D.; Corresponding Secretary, Angelo Heilprin; Conservator, Dr. Henry Skinner.

Entomological Society of Washington, Nov. 6, 1890.—Mr. Erwin F. Smith was elected a member of the Society.

Mr. Schwarz exhibited a larva of the genus *Carabus* with deformed maxillary palpi. The right palpus is normally formed, except that the suture between the first and second joints is nearly obliterated; the left palpus is only 3-jointed, with the joints nearly transverse, as in *Calosoma*.

Mr. Marlatt exhibited three female specimens of a species of the Tryphonid genus *Metopius*. The strikingly large and peculiar ovipositor of this species was described, and reference was made to the literature relating to this genus, from which it appears that the female has never been properly characterized, if indeed it has ever been described at all.

Dr. Marx gave some additional notes on his experiments with the bite of *Lathrodectus*, but stated that the results had been wholly negative.

Mr. Howard read a paper entitled, "The Habits of Pachyneuron," in which he referred to the breeding records of this genus of Chalcididæ, recording twenty distinct rearings in North America, and made a number of interesting deductions therefrom.

Mr. Schwarz read a paper on the food habits of *Corthylus punctatissimus*. This Scolytid, previously known to infest the subterranean part of the stems of Sugar Maple saplings, was found in large numbers in the roots and subterranean stems of the common huckleberry, *Gaylussacia resinosa*, in the vicinity of Washington during September and October. In this connection Mr. Schwarz presented the description of a second North American *Corthylus*, *C. spinifer*, from semi-tropical Florida.

Mr. Marlatt presented a paper on the Final Molting of Tenthredinid Larvæ, in which he described the molting undergone by the larva of nearly all saw-flies after full growth is reached and just prior to spinning up or entering the ground to pupate, describing also the accompanying change of color. Reference was made to the scanty literature of the subject and the explanation of this molt by Cameron on the ground of protection.

Mr. Townsend read a paper on the Leptid (Dipterous) genera *Triptotricha* Lw. and *Agnotomyia* Will. Mr. Townsend does not believe that the species of *Triptotricha*, with only one front tibial spur, should, without other distinguishing characters, be generically separated from those possessing two.

Mr. Fernow called attention to the ravages of *Gastropacha monacha*, particularly in Bavaria, stating that it has probably been introduced in the present instance from Italy.

General discussion followed on a novel method employed in Europe of collecting and destroying this Bombycid.

C. L. Marlatt,
Recording Secretary.

EXCHANGE LIST.

BUTTERFLIES OF AMERICA NORTH OF MEXICO.

Compiled by Dr. HENRY SKINNER.

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IVES

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Ent. News

Vol. II, Pl. II

CITHERONIA REGALIS.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

VOL. II. FEBRUARY, 1891. No. 2.

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Illustration No. 2.—About ten months are supposed to have elapsed, and we now present our larva figured in Vol. II, Pl. I, transformed into an imago. This was also photographed by Mr. J. F. Sachse, editor of the "American Journal of Photography," to whom we are indebted for the plate.—ED.

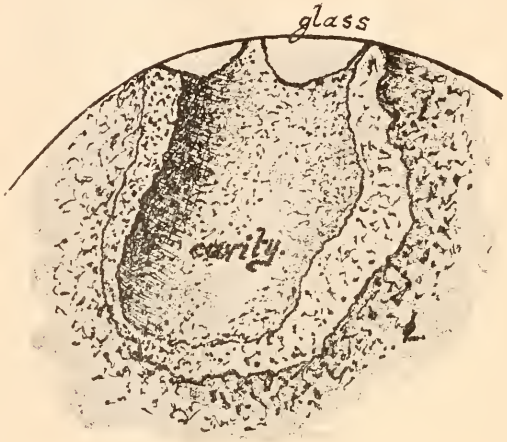
———o———

NOTES ON COLEOPTERA.

BY PROF. OTTO LUGGER.

Cremastochilus Knochii Lec.—This beetle is rather abundant in the vicinity of our Experiment Station (St. Anthony Park, Minnesota), and occurs here from early Spring till late in fall. One field seems to be its favorite breeding ground. It is a field with poor and rather sandy soil, thoroughly exhausted by constant croppings, so that even oats can no longer be produced successfully. Being simply held on speculation for building lots, it is decidedly neglected for farming purposes. This field forms, however, not a bad hunting ground for a number of insects, and, besides other species of beetles *Harpalus erraticus* Say, *Bolboceras farctus* and *lazarus* Fab. and *Cremastochilus Knochii* Lec. are very common. With the exception of the latter all have to

be dug from the soil. But as they prefer to make their abode in solid ground, in a narrow path, they are easily found, as their presence is always indicated by a perfectly round hole, the size of which showing the particular species which made it. The *Cremastochilus* also frequents this path, and is usually found slowly crawling about, and most frequently several are found in close proximity to each other. A large number of small ants have also nests in this hard-trodden soil; these nests are under-



ground galleries, with exceedingly small openings towards the light, not much larger than the holes made by the heads of common pins.

Observation 1.—A *Cremastochilus* surrounded by numerous ants, was gradually pushed by them in a certain direction. The beetle was perfectly quiet, and offered no resistance to the ants, nor did it assist them in any perceptible way. As the process of moving such an immense object was exceedingly slow, I did not observe the ultimate destination of the procession.

Observation 2.—A *Cremastochilus* was found sitting right over one of the small entrances of an ant nest. With slow and very deliberate actions the beetle gradually enlarged the hole under it, and in the course of nearly seven hours disappeared from view. During all this time not a single ant appeared in its vicinity, nor did any assist the beetle in its efforts to penetrate to the nest below.

Observation 3.—Very similar to observation 2, only a number of ants assisted the beetle by removing the dirt scraped out by the latter.

Observation 4 —Early in Spring I found a number of these beetles mating above ground. Confining some in a low round jar, filled with earth to a depth of three inches, they soon disappeared from the surface. They lived in this jar for about two months, mostly hidden in the earth, but whenever the jar was exposed to the warming influence of the sun the beetles reappeared upon the surface and moved about rather actively for such slow insects. Several times they attempted to fly away. As I wished to obtain the eggs, I investigated the soil, and found a very peculiar structure in it, as illustrated in figure in natural size. The cavity was rather smooth inside and large enough to harbor the five pairs of beetles living in the jar. No eggs were discovered, but all ten beetles were found dead in the room made by themselves. As the upper roof of the nest was broken up in removing the soil from the jar, I do not know whether there was one or more entrances to this room.

Next season I intend to establish a formicarium with such beetles, with the view of studying the relations between them and the ants.

If I recollect right the locality for *Omus submetallicus* Horn seems to be in doubt. I have recently obtained a specimen from Washington.

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LIST OF LEPIDOPTERA TAKEN AT ELECTRIC LIGHTS IN BROOKLYN, WITH NOTES THEREON.

BY RODRIGUES OTTOLENGUI, M.D.S.

I am only a beginner, this Summer having been my first season, nevertheless I am told that my catch has been a remarkable one; remarkable in that it shows what may be done by thorough work in a single section. Seventy-five nights this Summer my sister and myself were out with our nets and bottles. The first night, early in May, we walked about aimlessly till we found an electric light near the ground, and here, and at the one next to it, we took fifty insects, the first being a Luna, which my sister captured. I will say here that, though we took other specimens of Luna, afterward we never took one having, like this one, a dis-

tinct border at the edge of all four wings. Subsequently, we tried other localities, but never had much luck; therefore, we finally went nowhere else; thus the following list shows what can be done in a single secluded, well-lighted spot near foliage, in the heart of a great city. I will mention the number taken when the insect is rare, or when only a few were captured. Of the others we took, or refused quantities, except of Geometridæ.

SPHINGIDÆ.

Of Sphingidæ we never took a specimen till after ten o'clock. *Thyreus Abbottii*, two males; *Deilephila lineata*, one male; *Philampelus achemon*, one male. Of this beautiful species I saw another specimen, but failed to get it. It alighted on a tree, and after climbing I saw no chance to get it in my net. I returned to the ground and took a bottle, but though I was most careful in trying to place the bottle over him, he dropped between the leaves and was seen no more. This lesson, however, proved of value, and later I secured a valuable insect under similar circumstances as will be told. *Everyx myron*, three males and one female; *Smerinthus geminatus*, two males; *Calasymbolus* (*Smerinthus*) *myops*, three pairs; *Ceratomia amyntor*, eight males; *Daremma undulosa*, one pair; *Phlegethontius carolina*, eight males and two females. One of these males is the valuable insect to which I referred. It is wood-brown, about the same shade as *Ceratomia amyntor*. Mr. Henry Edwards tells me that there is an insect in South America exactly like my specimen, which is counted a species, but which he has thought to be but a variety of S. Carolina, hence the extreme interest in finding this light variety in this latitude. This was at rest in the tree, as was the other which I lost. Profiting by experience, I took it with my fingers, thumb and finger above and below the thorax. It is only slightly ruffled on the upper side and not noticeable. *Phlegethontius celeus*, two males; *Sphinx drupiferarum*, one female; *Sphinx kalmiæ*, one male. Total, 40; not bad, I think, for late night hunting.

ZYGÆNIDÆ.

Alypia octomaculata, two pairs; *Eudryas grata*, three pairs; *Scepsis fulvicollis*.

BOMBYCES.—*Arctia nais*, one male and one female; *Arctia arge*, one pair; *Pyrrharctia isabella*. From a lot of these I have

picked out a set of seven males which show a gradual variation from having but a single spot on each wing to having very large black spots on the wings. *Leucarctia acrea;* males fairly common; took but one female. *Spilosoma virginica, Hyphantria textor, Euchætes collaris*, two pairs; *Halisidota caryæ*. I took a number of these, one pair only, having a spot on the secondaries, *Orgyia leucosigma*. One of my specimens Mr. Edwards says is the largest that he has ever seen. It measures one and a half inches. *Apatelodes torrefacta*, one male; *Datana angusi*, one male; *Datana intergerrima, Datana perspicua*, five pairs; *Nadata gibbosa*, five males. In one the silver spots on primaries are almost invisible. *Lophodonta ferruginea*, two males, one having secondaries all gray. *Edema albifrons*, one pair; *Seirodonta bilineata*, one pair; *Cœlodasys unicornis*, one pair; *Cœlodasys* ———*?*; one male only. Several well known collectors have failed to identify this. *Janassa lignicolor*, one male; a beautiful specimen. *Heterocampa unicolor;* a beautiful pair of this which I believe is difficult to take perfect. The male was taken in May and the female in last week of July. *Cerura borealis*, one male; *Cerura occidentalis*, one male; *Cerura cinerea* one pair; *Actias luna*, six males; *Philosamia cynthia, Callosamia promethea, Callosamia angulifera*, two females; *Platysamia cecropia, Hyperchiria io*, thirty males. I took many beautiful varieties of this one the primaries almost all cream color, another heavily shaded with black. *Eacles imperialis*, thirty males and three females. *Citheronia regalis*, two pairs; *Dryocampa rubicunda*, four males. *Clisiocampa americana, Artace punctistriga*, four males; *Cossus centerensis*, one male. I think this is the first reported from this locality. *Prionoxystus robinæ*, three females.

NOCTUÆ.—*Habrosyne scripta*, ten pairs. A remarkable catch I am told; very bright, beautiful specimens. *Raphia frater, Apatela occidentalis*, one pair; *Apatela lobelilæ, Apatela hasta*, one pair; *Apatela americana*, one male; *Apatelis hamamelis*, one male; *Apatela innotata*, one male; *Apatela dissecta*, one male; *Apatela oblinita, Agrotis C-nigrum, Agrotis plecta, Agrotis cupida*, one male; *Agrotis verticalis*, one male; *Agrotis annexa*, one female; *Agrotis malefida, Agrotis ypsilon, Agrotis saucia, Mamestra picta, Mamestra arctica*, one pair; *Mamestra renigera, Hadena devastatrix, Hadena vulvivaga, Hadena* ———*?*; one specimen only. Several collectors have failed to identify this.

Prodenia commelinæ, one pair; *Euplexia lucipera*, one female; *Nephelodes minians* and var. *violans*, of each one male; *Gortyna nebris* and var. *nitella*, of each one male; *Achatodes zeæ*, one male; *Heliophila albilinea*, *Heliophila phragmitidicola*, *Heliophila unipuncta*, *Heliophila pseudargyra;* oddly enough, I took but one specimen of this. *Heliophila pseudargyra* var. *callide*, one female; *Orthodes infirma*, one pair; *Cucullia convexipennis*, one pair; *Cucullia asteroides*, *Cucullia ———?*; absent in three large collections. *Telesilla cinereola*, two pairs; *Plusia ærea*, *Plusia precationis*, *Plusia ni*, *Plusia simplex*, *Tamilla nundina*; *Melicleptria thoreani* this I do not find in Grote's List, and I may have the specific name wrong.* *Melicleptria ———?* Mr. Henry Edwards thinks this an entirely new species. *Heliothis armiger*, *Ligranthecia spragnei Chamyris cerintha*, one pair; *Drasteria erechtea* and var. *agricola*, *Euclidia cuspida*, *Paralelis bistriaris*, *Homoptera edusa*, *Homoptera lunata*, *Epixeuxis americalis*, one female; *Chytolyta morbidalis*, *Hypena evanidalis*, *Hypena scabra*, *Hypena baltimoralis.*

GEOMETRIDÆ.

Chœrodes transversata, *Caberodes confusaria*, *Ennomos alniaria*, *Eudalimia subsignaria;* took both sexes. *Endropia hypocharia*, *Metrocampa margaritata*, *Angerona crocataria*, *Anagoga occiduaria*, *Acidalia ennucleata*, *Acidalia quinqueliniaria*, *Caterva catenaria*, *Tephrosia canadaria*, *Paraphia subatomaria*, *Anticlea vasiliata*, *Petrophora diversilineata*, *Boarmia crepuscularia*, *Eubœa cognitaria.*

In making out this list I have followed Grote. In addition to those enumerated I took fifty specimens of *Zeuzera æsculi* found recently in this country. This insect was first reported in Newark. I have not yet heard of others taking it in Brooklyn. I found it quite common and enduring for three weeks. Had I known the the rarity of it, and value for exchange, I could easily have taken two hundred. I took, however, only two females, and those under peculiar circumstances. One night it rained so hard that I abandoned all idea of hunting, and made a social call. Returning about eleven o'clock I walked home, the rain having ceased. Walking along an asphalt roadway, lighted by electric lamps, I found hundreds of insects swamped on the wet pavement. Finally, I came to a little pool of water in which I noticed

* No. 969, Grote's List.—Ed.

two large insects floundering about. I took them out, placed them in an envelope, and hurried home, where I transferred them to a bottle. They were two females of the *Zeuzera*, and when dried made excellent specimens; antennæ perfect, and markings brighter than any of the males. I took and mounted during the season 2000 specimens exclusive of diurnals.

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ELEMENTARY ENTOMOLOGY.

Eighth Paper.—INTERNAL ANATOMY (concluded).

The nervous system consists of a series of paired nerve-knots, or *ganglia*, connected by two nerve cords (*commissures*), and extending the entire length of the body. Typically, there is a pair of ganglia to each segment of the body, but usually the number of pairs is less than the number of segments, owing to the union of adjacent pairs. This nerve chain lies below (ventral to) the alimentary canal for the greater part of the body, but in the head, the two commissures pass upwards, one on each side of the œsophagus to a mass of united ganglia lying on the dorsal side of the canal in the head. This mass is the *brain*, or *supra-œsophagial* ganglion; it is thought to be formed by the union of several pairs of ganglia corresponding to the number of segments of which the head is formed.

From the ganglia of this nerve chain, nerves are given off to surrounding organs. Certain other ganglia are connected with this nerve chain which do not correspond in position to the segments. These latter ganglia supply by their branches the alimentary canal and the tracheæ.

The organs of sight are the simple and the compound eyes.*

* See ENTOMOLOGICAL NEWS, vol. i, p. 104.

In 1888 and 1889, Prof. Felix Plateau published in French the results of his studies on the vision of Arthropods. Dr. David Sharp, of London, gave an account of these experiments in the "Transactions of the Entomological Society of London" for 1889, p. 397, *et seq.*, concluding with two "general impressions" which he has "derived from the study of Prof. Plateau's valuable experiments."

1. "That insects in motion are largely guided by the direction of light and the existence of lights and shades. . . . . ."

2. "That there is at present no evidence at all that the light-perceptions are sufficiently complex to be entitled to be called seeing; but that, as the large development of the compound eye permits the simultaneous perception of movement, its direction, and of lights and shades over a certain area, a dragonfly may pursue and capture another insect without seeing it in our sense of the word seeing. (Trans. l. c. pp. 407, 408)."

Certain sense organs, supposed to be those of hearing, exist in the first abdominal segment, and in the tibiæ of the first pair of legs in various insects (Grasshoppers).

Organs of smell are believed to exist in the antennæ of many insects.

Organs of taste are thought to be present in the labium and maxillæ of some insects.

The antennæ play the part of organs of touch to a great extent.

The muscles of an insect are very numerous. They are slender, faint yellowish fibres, transversely striated, not enclosed in sheaths. They are arranged in correspondence with the segments of the body wall and the joints of the appendages.

The respiratory system in insects consists of air tubes, or tracheæ.* They have their external openings, called *spiracles*, or *stigmata*, in the pleura of the thoracic and first eight abdominal segments, one pair to each segment. The number of pairs is thus never more than eleven, and is usually less. In the thoracic segments, at least, the spiracles are situated in the peritremes, and are usually guarded by hairs, or a chitinous piece, acting as a valve. A short trachea runs inwards from each spiracle to a large longitudinal trachea, one of which runs along each side of the body. These two large tracheæ are connected by cross-tracheæ, corresponding in position to the segments of the body wall. From the two main tracheæ and the cross-tracheæ, numerous branches are given off in all directions, to all parts of the body, thus supplying the organs directly and not indirectly through the blood as in vertebrates. So numerous are the branches of the tracheæ that they also serve to hold other internal organs in position.

The tracheæ are sometimes dilated into air-sacs, which also decrease the specific gravity of the insect. Air-sacs occur only in imagos of flying insects, and not in larvæ, or in imagos of creeping insects.

Aquatic insects breathe either (1) air which they take from above the water's surface, or (2) air which is mixed with the water. In the first case the insect carries, by its wings, or other means, a bubble of air obtained at the water's surface; or, its spiracles are prolonged into long tubes which reach to the water's surface while the insect is below it. Insects breathing the air

* See ENTOMOLOGICAL NEWS, vol. i, pp. 71, 141.

which is mixed with the water, are provided with so-called *tracheal gills*. These are usually thin, thread-like, or plate-like expansions of the body wall, richly furnished with tracheæ. The thin walls of these gills permit an interchange between the air in the water and the air in the tracheæ. Tracheal gills may be entirely external, or may exist within the hind part of the intestine. In that they are supplied only with tracheæ containing air to be purified, tracheal gills differ from true gills of fishes and crustaceans, whose vessels contain blood to be purified.

"The act of respiration consists in the alternate dilatation and contraction of the abdominal segments, the air entering the body chiefly at the thoracic spiracles. As in vertebrates, the frequency of the acts of breathing increases after exertion. . . . . 'In the pupa and larva state, respiration is performed more equally by all the spiracles, and less especially by the thoracic ones.'" (Packard)

Insects are unisexual, *i.e.*, the males and females are different individuals.* No external characters, such as shape, color, etc., can be given to distinguish between the sexes of all insects. The reproductive organs are contained in the abdomen. Those of the male are the *testes*, which are paired glandular bodies, secreting the *sperm*, or fertilizing fluid, in which are numerous, very small, tadpole-like *spermatozoa*. Each testis has a duct, the *vas deferens*, which may dilate into a *vesicula seminalis*, after which the two vasa deferentia unite to form the *ductus ejaculatorius*, which opens into the external intromittent organ (*penis*), usually situated on the ventral side of the abdomen near its apex.

The female reproductive organs are the pair of *ovaries*, in which the eggs (*ova*) are found. The duct of each ovary (*oviduct*) unites with its fellow and forms the *vagina*. The vagina is connected with the ovipositor,† or has a free external opening (*vulva*), usually situated on the ventral side of the abdomen near its apex. "Connected also with the vagina are one or more pouches (*receptacula seminis*), within which the sperm is received and stored." The sperm "retains its fertilizing properties for a long time. Thus the queen bee or ant, pairs but once, though

* "Cases not unfrequently occur in which from arrest of development of the embryo, the sexual organs are imperfectly developed, so as to present the appearance of being both male and female" (Packard). Such individuals are termed *hermaphrodites*

† See ENT. NEWS, vol. ii, p. 9. Opening into the vagina is sometimes a poison sac communicating with the sting.

she may continue to lay fertile eggs for years. The fertilization of the eggs of insects takes place at the time they are laid. There is in one end of the shell of the egg, one or more pores known as *micropyles*. Through these the spermatozoa enter the egg as it passes the opening of the receptacula seminis. In some cases, at least, it is not necessary that an egg should be fertilized in order that the embryo should develop. This has been proven with the Honey Bee. But so far as is known the unfertilized eggs of the bee produce only males" (Comstock).

A non-sexual reproduction alternating with a sexual reproduction occurs in certain insects, as plant lice.

All insects are produced from eggs, and are therefore called *oviparous*. In some cases, however, the eggs are retained within the body of the mother until after hatching. Such insects are termed *ovoviviparous*. P. P. C.

ANOTHER IMMIGRATION THEORY.

BY E. P. VAN DUZEE.

Chancing to pick up a copy of the "Canadian Entomologist" of November, 1887, while browsing among some old entomological papers—a favorite pastime with me—I lighted on a "Note on Southern Moths found in the North," by A. R. Grote, A.M. Here, after reiterating his "theory" that *Erebus odora* and other of the southern species of moths that are constantly being reported from northern localities are mere "wind visitors or immigrants;" he says: "This is my theory of immigration from the South; no other writer agrees to it or advocates it. Right or wrong, it is my own." Whether this theory has been proved or disproved by more recent writers I know not, but the capture of an *odora* in this city, under somewhat peculiar circumstances, it seems to me might shed a little light on the subject.

Early in the past season one of our young collectors, Mr. J. C. Will, took an example of this insect in a wholesale fruit house in this city among a large pile of bananas recently received from the South. The thought naturally presents itself: may not this and others of these stray visitants have been introduced through the agency of commercial transportation, either as a pupæ or imagos? Many subtropical creatures (spiders, scorpions, centipedes, etc.) have been found here in banana cargoes, and why

not moths? The importation of bananas here has increased enormously of late years, and a corresponding increase is noticeable in the number of *odora* taken. Further confirmatory evidence might be found in the food habits of the *odora* larvæ if these were better known.

A somewhat parallel case is the occurrence of the large southern grasshopper, *Dictyophorus reticulatus* Thunb., near Rochester, N. Y., from whence I have received, through the kindness of Mr. A. E. Romer of this city, a full grown example. When captured it was in company with several others of its kind near one of the large nurseries for which that city is famous. In this case it seems reasonable to presume a cluster of eggs had been introduced with southern nursery stock, probably imbedded in the earth attached to the roots, and the prolonged warm weather had enabled them to perfect their growth. As it is not included in Prof. Smith's Catalogue of the Insects of New Jersey it is very unlikely that it could survive our severe Winters and become a member of our fauna.

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A NEW SPECIES OF NYSSONIDÆ.

BY WILLIAM J. FOX.

Bothynostethus distinctus n. sp.

♀.—Black, shining; clypeus, sides of face, space between antennæ, posterior orbits and sides of metathorax, with silvery pubescence; tubercles, post-scutellum, line on anterior tibiæ, spot on intermediate and posterior tibiæ yellowish white; head finely punctured, clothed with moderately long, pale brown pubescence; face with a well marked, longitudinal central impressed line, which extends from between the base of the antennæ almost to the lower ocellus, the front presents before the anterior ocellus and at the sides of the posterior ones, a deep slit or furrow, the lateral furrows oblique, anterior margin of clypeus, in the middle, with two large, separated teeth; between the teeth and the lateral angles of the clypeus are situated two much smaller teeth; third joint of antennæ shorter than either the fourth or fifth, the fourth is slightly longer than the fifth; joints 8–10 are about equal; eyes diverging toward the vertex, the inner margin slightly bent inward above the centre of the face; prothorax emarginate above in the middle, with a yellowish white, narrow line, interrupted at the emargination; beginning behind the emargination of the prothorax are two parallel, strongly marked lines, extending to the centre of the dorsulum; scutellum sparsely punctured, with a median impression, which is more distinct posteriorly; the suture between the dorsulum and scutellum deep and broad, the sides denticulate; post-scutellum divided by a median im-

pressed line; metathorax with a broad and deep longitudinal channel, the channel broadening at the base of the posterior surface of metathorax into a somewhat cordate pit, base of metathorax smooth, a little beyond a curved, deeply foveolate furrow extends from the central channel to the anterior-lateral angles of the metathorax; between these furrows and the sides, which are rugose, is a finely punctured space, posterior face before apex marked with deep pits. Wings hyaline at base, the apical half fuliginous; nervure and stigma black; costal and subcostal nervures confluent; tegulæ rufo-piceous, tibiæ and tarsi covered with whitish pile. Abdomen finely punctured, clothed with pale brown pile, which is more dense laterally, and on the fifth and sixth segments above, and on the posterior margins of the segments beneath, the posterior margins of the segments above smooth, rufo-piceous; pygidium large, rounded at tip, covered with appressed pale hair, venter reddish beneath. Length .35 inch.

♂.—More slender than the ♀, the anterior margin of the clypeus subtruncate, or slightly sinuate; the anterior tibæ in front and the tarsi are rufous; pygidium short, obtuse at tip, with appressed pubescence, otherwise as in the ♀. Length .30 inch.

Three specimens, Camden County N. J., July 22d, and Aug. 10, 1890.

In this, we add to our fauna a genus that seems to be intermediate between the *Nyssonidæ* and *Larridæ*, which is well defined by the unarmed metathorax, the intermediate tibiæ having but one spur at apex and the mandibles being notched on their outer margin as in *Larra*.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

☞ **See change of wording in notice of Identification of Insects.**

IN Mr. Liebeck's article on the Cicindelidæ of a Season, published in the December number (vol. i) of the NEWS he states that he knew of but two specimens of *Cicindela tortuosa* ever taken in New Jersey. I would like to place on record the capture of a third specimen, which was taken alive, and was found in company with *C. hirticollis;* the specimen was captured at Atlantic City, N. J. It seems strange that Mr. Liebeck should remember but two specimens of this species ever taken in New Jersey, when it was at Mr. Liebeck's own suggestion that the specimen in question received a bath of benzine to bring out the markings more clearly.

PHILIP LAURENT.

THE following description of a variety of *Papilio turnus* may be of interest to the readers of the NEWS: The specimen, which is a ♂, was taken on the 6th of July, 1890, at Mt. Airy, Pa. The specimen differs from the normal ♂ in the almost entire absence of the row of yellow markings in the black border of the anterior wings, only the two yellow markings in the extreme apical portion of the wings being present, while the row of yellow markings in the border of the posterior wings is narrowed down to a mere dash, the yellow of which is thickly interspread with many gray scales. Of the many descriptions and figures of the varieties of *P. turnus* that have been published from time to time, none describe the above variation.—PHILIP LAURENT.

RETINIA COMSTOCKIANA Fernald, occurs abundantly in yellow pines at Sugar Grove, near Lancaster, Ohio. Serious damage results in consequence, as the infested twigs and branches invariably die. At present, October, the larvæ are lining their mines preparatory to hibernation. The habits of the insect here agree well with those given by Prof. Comstock (Report Dept. of Agriculture, 1879), whose observations were made at Ithaca, N. Y. I have found that weevil follows the moth's larva as a borer in the dead twigs.—Prof. D. S. KELLICOTT.

PLATYCERURA FURCILLA Packard. At the above-mentioned station, late in September, I took several larvæ, apparently of *P. furcilla*. They were all found concealed among the yellow pine needles; in confinement they were rarely seen feeding. Dr. Lintner has described, with his usual accuracy, the larva and its habits in "Entomological Contributions," No. 3, p 131.—Prof. D. S. KELLICOTT.

THE ELECTRIC LIGHT AS AN INSECTICIDE.—Any one taking the trouble to examine the contents of the globe surrounding an arc light, in the morning, will be astonished at the immense number of insect remains, consisting of all orders. By far the greater number are small lepidopterous forms, and, according to my experience, the Tortricidæ outnumbering all the rest. Many Neuroptera fall victims to the light, among them large numbers of the "aphis lions," whose larvæ feed on the aphides, or plant lice; thus we lose one of the agriculturist's best friends. Many species quite rare in collections may be taken in this way, though very few perfect specimens are to be had, owing to the intense heat of the carbons, the slightest touch of which burns the wings. Prof. Lintner made a microscopical examination of the contents of a single globe, and estimates that the débris he inspected represented 33,000 insects, and he believes the average number destroyed in a night by a single lamp at nearly 100,000. On one occasion I saw nearly three pints of bodies, legs and wings emptied from a single globe by a man who replaced the carbon in the morning.

C. A. B.

HUMORS OF COLLECTING.—Like all other things, entomology has its ludicrous side, as some such squibs as the following will verify: A few years ago while out collecting with a fellow-entomologist, not far from

Gloucester, N. J., we got in the neighborhood of some tumble-down shanties; at the back gate of one that opened on a lot covered with weeds stood a woman, with arms akimbo, intently watching our manœuvres, when my friend captured a specimen of *Limenitis ursula*, at which the curiosity of the aforesaid female was sufficiently aroused to ask the question, "What do you do with them things?" "Oh," said he, "we preserve them." Lifting up her hands in apparent disgust, she said, "Sakes alive, what'll people eat next!" On another occasion, while collecting along the Camden and Atlantic Railroad, I saw, in a narrow gully that ran parallel to the track, a portion of a dead snake, which I saw move, and, concluding there was a "bug" at work, I turned it over and found a male *Necrophorus americana;* while looking for the female, which I presently found, a countryman, walking along the track, stopped and looked down at me just as I dropped it in my bottle and said, "What do you do with them air things?" but before I had time to frame an answer he continued, "do you make medsin of 'em?" I said "yes;" he then said, "yaas, I've heern tell of that afore."—C. A. B.

It may be of interest to the readers of the News to know that here in Oregon we are sympathizers and sufferers with our eastern friends from that dread pest of hop growers the hop louse (*Phorodan humuli*), being the same as has been doing so much damage heretofore in the Eastern States. It has been described and written about extensively by the Department of Agriculture at Washington, D. C., and a further description would be out of place here. The hop crop of Washington for the year 1890 has been estimated at 38,000 bales, that of Oregon some 18,000 less, making a total of 58,000 bales, which may be figured at least within a very reasonable limit at 200 pounds to the bale and 30 cents per pound, or $60 per bale, or $3,480,000 for the crop. The loss from the hop louse, where I have been able to observe, was at least one-fourth of what was gathered, or one-fifth of the entire crop, and from the best I have been able to learn the loss was about the same in other places; those exposed to the morning sun and sheltered from the wind by woods, etc., suffered most, the upper river bottoms in general next, while some places were almost free from them. By taking one-fourth of those saved, the larger amount of which was more or less damaged, it shows the remarkable loss of $870,000 from those little insects alone, so inconspicuous, yet in numbers so formidable. In some localities they came too late to do much damage, but where they came early they carried destruction with them. From the above figures we conclude it would be well for hop growers to avail themselves of the benefits to be derived from the painstaking researches of our government and let it guide them to the avoidance, if possible, of a similar visitation next year.—Aurelius Todd.

A Forest Plague in Bavaria.—The current *Kew Bulletin* contains several documents describing a terrible pest which has attacked the Bavarian pine forests. It is known as the *Nonnen*, and is caused by the caterpillar of the moth *Liparis monacha*, which has regularly attacked

forests on the Continent for the last 200 years or more. The pest appears at long intervals, but each appearance has been calamitous. In Bavaria alone the loss in State forest revenue next year is estimated at £40,000. According to the report of Mr. Victor Drummond, the Minister at Munich, the Winter frosts alone can now rid the forests of the caterpillars, and then it is feared that the bark beetle will follow and attack the diseased wood. Cuckoos, swallows and other birds, as well as wasps and other insects, have helped to get rid of the "nuns;" torches and bonfires have also been used with success; and the electric light, with a specially constructed exhauster, has been used with some success. Munich has been invaded by the "nuns" in immense numbers, and in some places the people were obliged to retreat before them. The Bavarian Forest Administration fears that no measures of destruction are of any avail. "We stand powerless before the immensity of the pest." It attacks by preference the pine and fir, but, failing these, it does not despise the beech, oak, and other forest trees; but it never attacks corn or wheat, and will never touch the horse chestnut. The only efficient general measure seems to be cutting down the whole forest infected, which makes the remedy worse than the disease. The electric light already referred to works by attracting the insects in swarms to the mouth of a large funnel, through which a rapid exhaust current of air is forced, sucking the insects into a hole under the ground, where they are buried. From a list of the various appearances of the pest, it seems that the first was in 1449. In 1853 an attack was made on East Prussia, but a storm drove the moths into the sea, whence they were thrown up by the waves in a huge bank, 30 German miles long, 7 feet wide, and 6 inches thick.

A Dragonfly with an Abnormal Wing.—A female of *Libellula pulchella* Drury, which I have lately examined, has the left front wing imperfectly developed. This wing is but three-fifths of the length of the right front wing (which is normal). The shortening has taken place throughout the entire length of the wing, but chiefly in the space between the nodus and the pterostigma. The median sector separates from the principal sector at about the usual place—half way between the triangle and the nodus—but it is very short, as it curves and joins the subnodal sector at about the same distance from the origin of the subnodal, as that between the origin of the subnodal and the point of separation of the median and principal sectors. The subnodal sector has its origin and position much as normal, but under the pterostigma it bifurcates. The short sector is bifurcated near its extremity, but is otherwise normal. The nodal sector is absent, unless it be represented by a short curved vein in the costal space between the nodus and the pterostigma, extending from the nodus to the median nervule. The discoidal areolets are entirely irregular. The two sectors of the triangle are broken and very irregular. The pterostigma is a little broader than normal, the apical spot is not as large; the nodal spot is represented by a streak with the same oblique trend as the normal spot.

The measurements of this wing as compared with the right front wing are as follows: in all cases the first figure is that of the (normal) right wing. Length 39.5 mm., 24 mm.; greatest breadth 8.5 mm., 8 mm. Length of pterostigma 5 mm., 5 mm. Distance from base to nodus 20 mm., 14 mm. Distance from nodus to inner side of pterostigma 12 mm., 3 mm. Antecubitals 17, 9. Postcubitals 12, 2 (the second very short, running from the short curved vein = nodal sector?, see *ante*, to the costa). Discoidal triangle long and narrow, with 3 cross-veins; shorter and broader, with 1 cross-vein. Internal triangle 6 cells, 2 cells. Hypertrigonals 2, 0. Basal streak extends to level of 8th antecubital, about 11 mm.; to level of half way between 4th and 5th antecubitals, about 8 mm.

The relative positions of the unmentioned veins are as nearly normal as the shortness of the wing will allow. Both hind wings and the rest of the body are normal.

This female (an adult) was taken in the upper part of the city of Philadelphia, in 1890, by Mr. Charles Yung, who presented it to Mr. Charles W. Johnson of the Wagner Institute. To the kindness of Mr. Johnson I am indebted for the opportunity of examining and describing it.

PHILIP P. CALVERT.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Twelve names, if possible, will appear in each issue of NEWS, according to number. Address packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

GEORGE MILLER.—2, *Cacœcia fervidana;* 5, *Therina seminudaria;* 7, *Thelcteria pupula;* 9, *Mesographe stramentalis;* 12, *Pamphila campestris.*

F. H. HILLMAN.—1, *Polyphylla decemlineata;* 2, *Aphodius granarius;* 3, *Catalpa granicollis;* 4, *Cremastochilus pilosicollis;* 5, *Silpha ramosa;* 6, *Silpha lapponica;* 7, *Dermestes marmoratus;* 8, *Hippodamia americana;* 9, *Hippodamia Leconlei;* 10, *Hippodamia spuria;* 11, *Coccinella transversoguttata;* 12, *Hippodamia convergens.*

G. D. BRADFORD.—1, *Galeruca decora?;* 2, *Dibolia borealis;* 3, *Gastroidea cyanea;* 4, *Amara impunctlcollis;* 5, *Melanotus communis;* 6, *Platynus placidus;* 7, *Platydema ruficorne;* 8, *Oedionychis vians;* 9, *Agonoderus pallipes;* 10, *Bylurus unicolor*, var.; 11, *Telephorus carolinus;* 12, *Platydema americanum.*

Entomological Literature.

THE ENTOMOLOGIST, December, 1890.—Editorial notes on Rhopalocera of West Norfolk, by A. Smith. Collecting in Wales, by J. Arkle. A preliminary list of the insect fauna of Middlesex, by T. D. A. Cockerell. Contributions to the chemistry of insect colors, by F. H. Perry Coste. Lists of insects taken in the Faroe and Westmann Isles, and in Iceland, by Dr. F. A. Walker. Entomological notes, captures, etc. Doings of Societies.

THE ANNALS AND MAGAZINE OF NATURAL HISTORY, December, 1890. On new Longicorn Coleoptera from Madagascar, by C. J. Gahan. Descriptions of new genera of Pyralidæ, by W. Warren. *Aspidiotus bicarinatus*, a lepidopterous larva, by E. E. Green.

THE JOURNAL OF THE BOMBAY NATURAL HISTORY SOCIETY, vol. v, No. 3.—On new and little-known butterflies from the Indian region, with descriptions of three new genera of Hesperidæ, by Lionel De Nicéville (with two plates). On new and little-known Hymenoptera from India, Burma and Ceylon, by Major C. T. Bingham (with two plates). Notes on the larvæ and pupæ of some of the butterflies of the Bombay Presidency, by J. H. Davidson and E. H. Aitken (three plates). Butterflies of the Central Provinces, by J. A. Betham, pt. 3. List of Chin-Lushai butterflies, by Lionel De Nicéville. The protective coloring of chrysalids, by A. W. Morris.

THE CANADIAN RECORD OF SCIENCE, vol. iv, No. 4.—A new Canadian *Platynus–P. hornii*, by T. Hansen, fig. on p. 236.

MATHEMATISCHE UND NATURWISSENSCHAFTLICHE BERICHTE AUS UNGARN, vii (June, 1888–October, 1889), 1890.—A. Mocsary prints (in German) the introduction to his Monographia Chrysididarum Orbis Terrarum Universi.

L'AUXILIAIRE (Amiens), October, 1890.—The wax of the cochineal insect, by E. André.

COMPTE-RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, Nov. 8, 1890.—Three unpublished Psychids from southeastern Africa,* by F. J. M. Heylaerts. *Megalodon Blanchardi*,* n. sp., by C. Brongniart. Description of a new species of Elaterid of the genus *Chalcolepidius*, by E. Candeze; *C. pistorius*, Honduras. Description of a new species of Elaterid of the genus *Adiaphorus* (Candeze),* by G. Dumont. Note on the Hydrocanthares of Chota-Nagpore,* by G. Severin. Diagnoses of some new Coleoptera from the Congo,* by A. Duvivier; *Bangalaia*, n. gen. of Prosopocerida.

* Contains new species other than North American.

Deutsche Entomologische Zeitschrift, 1890, heft 2.—Some new Coccinellidæ,* by J. Weise; *Niteta* n. gen. Tenthredinidæ of Europe, by F. W. Konow; an analytical table of genera and a catalogue of species; *Amauronematus*, *Holcocneme*, *Pachynematus*, *Lygæonematus*, *Micronematus*, *Eriocampoides*, *Scolioneura*, *Loderus*, *Encarsioneura*, n. gen. Description of new Snout Beetles from China,* and The habitat of the genus *Endaliscus* Kirsch, and a new representative thereof,* by J. Faust. On the varieties of some species of Goliathidæ, by Dr. G. Kraatz. New species of *Glycyphana*,* by Dr. K. Flach. *Cirrhospila* and *Melinospila*, two new genera of Macronotidæ (Cetonidæ), by Dr. G. Kraatz; 1 plate. On the genus *Granida* Motsch., id. On varieties of *Cicindela* [several species]; id. On species of *Melæ*,* by K. Escherich. Analytical review of the known species of *Lethrus*,* by E. Reitter. List of the Wasp Guests collected by Dr. A. Forel in South Tunis and East Algeria,* by E. Wasmann. New Myrmecophilous Staphylinæ from Brazil,* by E. Wasmann; figs.; *Ecitophila*, *Mesotrochus* n. gen. Snout Beetles from the Mediterranean countries,* by J. Faust. Mylabridæ or Bruchidæ, additional notes,* by F. Baudi. *Malthodes Liegeti*,* n. sp., by J. Weise. Two new North African genera of Melolonthidæ, by Dr. G. Kraatz; *Microphylla*, *Sphodroxia*, n. gen. Thirteenth contribution to the Coleopterous Fauna of Turkestan,* by Dr. L. von Heyden, E. Reitter and J. Weise. Contribution to the Coleopterous Fauna of Amasia and Samsoun in northern Asia Minor, by Dr. L. von Heyden and E. Reitter. Revision of the species of the Palæarctic Fauna of the Coleopterous genus *Hoplia Ill.*,* by E. Reitter. New Coleoptera from Europe, the bordering countries and Siberia, with remarks on known species,* eleventh part, by E. Reitter. On varieties of *Pachnoda* (two species) and *Brachagenius*, new genus of Trichiadæ,* by Dr. G. Kraatz; figures.

Verhandlungen des Naturhistorisches Vereins der preussichen Rheinlande, Westfalens und des Reg. Bezirks Osnabruck, 5th series, vii, 1st half, 1890.—The Coleopterous Fauna of Soest, by C. Verhoeff. The Gall-flies and Galls of Siegerland,* by E. H. Rübsaamen; with two plates.

1. Bidrag til Kundskaben om Norges Hemipterog Orthopter-Fauna.. 2. Supplement til H. Siebke's Enumeratio Insectorum Norvegicorum, Fasc. iv (Diptera), Christiana, 1889. Both by W. M. Schoyen.

Nova Acta der Ksl. Leop.-Carol. Deutschen Akademie der Naturforscher, liv, No. 4, 5. Halle, 1890.—Systema Geometrarum zonæ temperatioris septentrionalis, by C. F. von Gumppenberg, Parts 3 and 4; *Cartographa*, *Limonophila*, *Epicaste*, new genera.

Entomologische Nachrichten, xvi, No. 22, November, 1890.—Synopsis of the species of the coleopterous genus *Acmæodera* Eschsch.

* Contains new species other than North American.

known to me from Europe and the neighboring countries,* E. Reitter. For preparing Hymenoptera, by Dr. H. von Jhering. Ichneumonid studies,* by Dr. Kriechbaumer, *Ischnidium*, n. gen. for *Ischnogaster* preoccupied.

Zeitschrift fur Wissenschaftliche Zoologie, li, No. 1.—On the Halteres of Diptera, by E. Weinland. A paper of 112 pages, illustrated by five plates and two woodcuts.

Archiv fur Naturgeschichte, lvi, 1 Bd., No. 3.—The claw joint on the Insect Foot: A contribution to the knowledge of its structure and function, by A. Ockler; two plates.

Revue Biologique du Nord de la France 3e Annee, No. 3.—Notes on the Acarocecidæ,* by Dr. H. Fockeu.

Il Naturalista Siciliano, ix, No. 11.—Some remarks on the work of Prof. B. Grassi and Dr. G. Rovelli. "Il sistema dei Tisanuri" [Thysanura,] by Dr. J. T. Oudemans. No. 12. Lepidopterological notes (continued), by E. Ragusa; on Sicilian species.

Sitzungsberichte der Konigl. bohmischen Gesellschaft der Wissenschaften. Mathematisch-Naturwissenschaftliche Classe, 1890, 1.—Preliminary list of the Bohemian Trichoptera, by F. Klapalek.

Entomologische Nachrichten, xvi, No. 23.—List of Locustodeæ of the families Phaneropteridæ, Mekonemidæ and Gryllakridæ, collected by Dr. Paul Preuss at Barombi Station, German West Africa, in 1890,* by Dr. F. Karsch; *Dithela*, *Drepanophyllum*, *Catoptropteryx*, *Preussia*, new genera.

Compte-Rendu. L'Academie des Sciences, Dec. 8, 1890.—Note on a new genus of jumping *Acarina* from the coast of the Channel, by MM. Topsent and Dr. Trouessart; *Nanorchestes amphibius*, gen. and sp. new.

Tijdschrift voor Entomologie, xxxiii, Deel, 1 and 2, Aflevering. [The Hague,] 1890. The Macrolepidoptera of Breda and its environs, supplementary list No. 9, by F. J. M. Heylærts. Tabular review of the Bembidioni taken in the Netherlands, by Dr. E. Everts. *Papilio van de Polli* nov. sp.,* by P. C. T. Snellen. Comparative studies on Wasp Guests and Termite Guests, by E. Wasmann, one plate. *Euplœa Gelderii* nov. spec.,* by P. C. T. Snellen. System-Schema of the Pselaphidæ, by Dr. L. W. Schaufuss; an analytical table of the family with descriptions of new fossil genera and species from the Baltic amber; four plates illustrate both living and fossil species. On two native and three Javan species of the genus *Hypenodes* Guen.,* by P. C. T. Snellen; one plate. Proceedings, etc.

* Contains new species other than North American.

ENTOMOLOGISCHE NACHRICHTEN, xvi, No. 24, December, 1890.—List of the Locustodeæ of the families Phaneropteridæ, Mekonemidæ and Gryllakridæ, collected by Dr. Paul Preuss at Barombi in German West Africa in 1890 (concluded), by Dr. F. Karsch. On Gomphidæ,* ibid.; *Neurogomphus*, *Podogomphus*, n. gen. Additions to the Hymenoptera described in No. 21,* by C. Verhoeff. Notes. Literature. As if in confirmation of certain remarks of the reviewer in the January number (pp. 17, 18), Dr. Karsch says, in a foot-note to his article on the Gomphidæ, "Since not names alone, but only clear ideas advance science, I here follow the well-weighed works of the monographer Selys and not Kirby, whose Synonymic Catalogue of the Neuroptera Odonata has already suffered an unfavorable criticism from Selys. . . .'. The use of a generic name *Aeshna* F. (for *Gomphus* Leach) alongside of *Aeschna* Illig. should hardly find observance."

REVUE D'ENTOMOLOGIE (Caen), ix, No. 10, October, 1890.—Habits and metamorphoses of insects (concluded), by Capt. Xambeu (Coleoptera). To the knowledge of the Nabidæ,* by O. M. Reuter; *Hoplistoscelis* (for *N. sericans* Reut. and other species from N. America, etc.), *Halorabis*, *Lasiomerus*, *Acanthonabis*, *Stenonabis*, new subgen. Necrology—E. T. Atkinson, E. Bergroth. Materials for the myrmecological fauna of Sierra Leone (West Africa),* by Ernest André; *Psalidomyrmex*, n. gen.

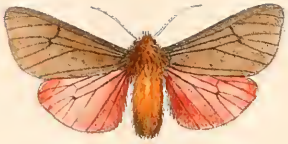
* Contains new species other than North American.

OBITUARY.

OWEN S. WILSON died at Cwmffrwd, Carmarthen, on August 25th last. He was the author of a work on the Larvæ of British Lepidoptera, 367 pp., 40 colored plates; published in 1880.

E. T. ATKINSON, Accountant General of Bengal, and President of the Board of Trustees of the Indian Museum, died at Calcutta, September 15th. His entomological writings are important and well known, one of the latest being a Catalogue of the Capsidæ of the World.

ENTOMOLOGICAL NEWS for December was mailed December 1, 1890.
" " for January was mailed January 3, 1891.



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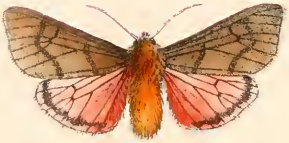

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EDWIN SHEPPARD. DEL. ET LITH. THE CENTURY LITH. CO. PHILA.

Fig. 1. PHRAGMATOBIA ASSIMILANS.–WALKER.
Fig. 2. PHRAGMATOBIA VAR. FRANCONIA.–SLOSSON.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY NATURAL SCIENCES, PHILADELPHIA.

VOL. II. MARCH, 1891. No. 3.

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Phragmatobia assimilans n. var. **franconia,** Pl. III, fig. 2.

BY ANNIE TRUMBULL SLOSSON.

(See Vol. II, No. 1, p. 2.)

Red. Abdomen conical, short and stout, with darker dorsal and lateral lines; pilose. Thorax darker and still more pilose. Primaries rather thinly clothed with scales, the ground color red, thickly sprinkled with dark brown, but with color of under ground showing through, so as to make the general tint a reddish chocolate; two discal dots connected by line, and two diffuse transverse lines, all of leaden black. The anterior line is arcuate, the posterior runs obliquely to median vein, then curves and takes a sinuously oblique course to inner margin. Secondaries pale red with two small discal dots, and a submarginal band somewhat irregular and interrupted, of leaden black. Antennæ simple, whitish. Underside of primaries and secondaries an almost even tint of bright red; the submarginal band on secondaries and discal dots of both sets of wings showing through faintly.

Described from one female, taken at light, May 24, 1890, at Franconia, N. H.

On three species of Hymenoptera from East Africa.

BY WILLIAM J. FOX.

The three species of Hymenoptera mentioned herein represent a portion of a small collection of insects collected by Dr. Wm. L. Abbott, on Mt. Kilima Njaro, E. Africa, at an elevation of 4000 feet, and presented by him to the American Entomological Society.

Sphex Abbotii n. sp.—♀. Black; head and thorax clothed with long black pubescence, which is short and rather bristly on the dorsulum, and intermingled with griseous on cheeks and sides of the thorax; clypeus feebly and sparsely punctured, with a shallow depression centrally, before the anterior margin with a strong transverse impression, the anterior margin, medially incurved, with a slight tooth or process on each side of the incurvation of inner eye; margin not altogether parallel as they begin to converge at a point opposite the ocelli; labrum acutely carinated on its anterior portion, the carina projecting sharply over its margin; a distinct impression extends from lower ocellus to between the base of antennæ; the ocelli placed in a V-shaped furrow; thorax on the sides shining, finely punctured, the dorsulum very finely rugose; scutellum with a strong medial impression; metathorax above coriaceous, impunctate, with a distinct longitudinal furrow, which is broader and deeper at apex, on the sides the metathorax is finely punctured; stigma furrow curved, foveolate; wings brownish black, with a strong violaceous reflection, first recurrent nervure received by the second submarginal cell before its apex, the second being received by the third submarginal cell between its base and middle, and is strongly bent towards the apex of the wing, third submarginal cell much narrower above than beneath; the anterior tarsi with a row of long spines posteriorly, the first joint with three spines in the middle of its anterior margin; abdomen shining, the venter with a few long black hairs. Length 30 mm.

One specimen.

Belonogaster rufipennis De Geer.

One specimen.

Xylocopa nigrita? Fab.

One specimen, which agrees tolerably well with the short diagnosis given by Smith (Tr. Ent. Soc. Lond., 1874, p. 261), but it has the anterior and posterior femora entirely black, and is 12 mm. longer. Not having specimens of *nigrita*, I am in some doubt as to the identity of this specimen. The length is 40 mm.

Observations on the butterfly, Paphia troglodita.

BY PROF. R. R. ROWLEY.

I have studied this species through the last six or seven summers, in the field, on its food-plant and in my rearing jars, and am quite well acquainted with its habits. Perhaps some of my observations will be of interest to the readers of ENTOMOLOGICAL NEWS.

The imago is one of our hardiest butterflies, appearing early in the Spring and lingering late in the Autumn. I have seen it on pleasant days in late March and early April at sunny spots in the woods darting from the trees to the dry leaves that cover the ground, and away again at the slightest noise. At that season it also frequents sunny south hillsides, and is always very active, being at all times a difficult butterfly to take in the net.

The last brood of imagos appears in early October and often flies till November, appearing in the Spring as a very ragged and anything but handsome insect.

As its food-plant, *Croton capitatum*, is an annual, slow to germinate, and tardy in its growth, the eggs for the first brood are not laid till May. It hardly seems possible that these torn and faded butterflies of March should linger till May to fulfil the mission of nature, but they are fitted by that same nature to survive the frosts of Winter, and why should they not adapt themselves to their surroundings and accommodate themselves to circumstances?

The eggs hatch in from four to six days. They are round, apparently smooth, and, when first laid, of a pale sky-blue, almost transparent appearance, growing yellowish and opaque in two or three days.

There are, perhaps, three broods of butterflies in a season, but this is a hard question to determine, as there is a constant intermingling of the broods, the same plant often supporting eggs, freshly hatched larvæ, half grown and full grown caterpillars at the same time.

Although *Croton capitatum* is an abundant plant here, the ♀ *Troglodita* seems to be rather choice of a place for her eggs and out of a cluster of weeds will select one or two to the neglect of the others, even depositing as many as four or five and often two eggs on the underside of one leaf.

Again, in neglected fields or pastures, you may wade through thousands of crowded plants with rarely a sight of a larva, or examine closely the great patches of *Croton* in the woods with little reward for your trouble.

It is by the roadside, in the cultivated fields, or along the sandy or gravelly beds of streams that the plants seem especially inviting to the females, and thrifty isolated weeds are often completely defoliated by the larvæ in late Summer.

Where the larvæ are abundant an occasional pupa is found suspended beneath a shelter made by fastening two or three leaves together by their edges with an underlining of silk, but search among neighboring stones and chunks fails to disclose chrysalids, a fact that sets one to wondering if the larvæ ever leaves its food-plant to suspend for pupation. I have never seen a larva on the ground, yet they must sometimes travel from plant to plant, as a few caterpillars soon defoliate a young *Croton* plant, and such leafless weeds are often seen without even a place for the suspension of a pupa.

In the rearing jars more than half of the larvæ, just prior to suspension, manifest no more activity than they have during their sluggish larva-hood, but commence at once to construct a shelter, while a much smaller number spin ladders of silk up the glass sides and suspend from the underside of the cover at the top.

The young larva, as soon as it begins to eat, commences the construction of a perch much as the larva of *Limenitis* is known to make, by using waste bits of leaf and excrement, fastened and stiffened with silk. This perch is usually at the apex of the leaf, but once I found two perches on the same leaf, and one was lateral. The little caterpillar rests on this perch when not feeding, and it serves, undoubtedly, for protection to the delicate creature against its keen-eyed enemies whatever they may be.

At the second molt the larva has developed a new building instinct. After selecting a suitable leaf it draws the edges together, securing them with silk, and takes refuge in this retreat. In feeding, the larva usually crawls out upon the stem to an adjoining leaf, but quite often, in its sluggishness, it attacks the base of its shelter, literally devouring its own home.

A young caterpillar seems to have no idea of the fitness of things, and constructs an abode large enough for a full grown "worm," secreting itself in the smaller end of its house, which,

upon a hasty examination, might be mistaken for an abandoned retreat of a mature larva.

The larva is a dirty white or soiled green color, of a granular appearance, with a large head, the body tapering slightly backward. Before suspension it has become a watery green, and after attaching itself to the silk button, it rests in a circular or loop-like position, the head bent forward till it quite reaches the button.

The pupa is usually of a beautiful green color, but sometimes is speckled with brown, and occasionally of a brown tint altogether, while rarely it is almost black. The abbreviated abdomen, the green color and appearance of the pupa in suspension reminds the observer of the pupa of *Archippus*, but the resemblance is not striking.

The pupal period is seven or eight days. For twelve hours before giving the imago the color and markings of the wings in miniature, beneath the pupal sheath, may be distinctly seen, and it is as easy to distinguish the females from the males by the wing band as it is among the imagos.

The fresh imagos will hang in the cage for some time unless crowded, without fluttering, and often when taken between the thumb and finger after having been out four or five hours they will fain death, sometimes dropping to the bottom of the cage when an attempt is being made to remove them. This is oftener the case, however, when they are fresh from the pupa and with no strength of wing. I have noticed the same thing in *Vanessa antiopa*, and perhaps this "'possum policy" is common to many diurnals.

The male imagos differ little in color or markings, being a uniform reddish brown with a darker border to the wings. An occasional ♂, however, displays a faint cross band on the forward wings, or, more properly, the broken boundary lines of a band-like field, and the same more rarely on the hind wings.

The females differ much in color and the appearance of the band. The underwings of the ♀ vary from a reddish brown to a yellowish brown.

The females of the earlier broods have nearly a uniform color over the entire wings, the band being merely outlined by bounding lines, or if the band differ in color from the rest of the wing it is not a noticeable difference. Moreover, the ground color of these earlier females is a brownish red, but paler than in the males.

The females of the later broods are usually lighter in color, and in most cases with more pronounced bands on the wings.

The band is sometimes almost yellow in contrast with a brownish red wing, making a very attractive cabinet specimen.

Often the hind wings are a shade lighter in color than the forward ones, and occasionally there is a row of yellow points or small spots beyond the band on this wing, and very rarely so on the front wing. The more distinct band distinguishes the later from the earlier female.

This butterfly may be seen by the roadside, near its food-plant, in sunny places, or about streams of water. The ♀ is rarely met with away from *Croton*, while the ♂ wanders broadly. At some damp place he may be found sipping, but it takes a clever hand to capture him. At the slightest jar he darts into the neighboring tree tops with the rapidity of an arrow, and it takes a quick eye even to follow him. He may come back, but his coming is as sudden as his going, and before you have collected yourself for a forward movement he is off again, and he rarely settles in the same place twice. With his wings folded, he defies detection among the brown leaves or stones, and you must flush him before you take him, and once flushed nothing but skillful manœuvreing can outwit him.

The larva of *Paphia troglodita* feeds on both *Croton capitatum* and *C. monanthogynum*, both of which grow here, often together. The former, however, seems to be the preferred food-plant. In one plant last August I counted twenty-five larvæ of all sizes, from those just hatched to those full grown. On another plant sixteen.

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ELEMENTARY ENTOMOLOGY.

Ninth Paper.—Classification of Insects.

The number of kinds of insects is very great, so that no one can hope to study minutely the structure, habits and transformations of but very few of them. But enough can easily be learned about the various kinds in a general way, to know that the whole great group of insects can be successively subdivided into smaller and smaller groups.

What we may call the unit in this subdivision or *classification*,

is the *species.** By a species of plants, animals, or insects, we mean a group of individual plants, animals, or insects (1) alike in appearance and (2) capable of producing fertile offspring among themselves.† The first part (1) of this definition is *morphological*, that is, it has to do with form, structure, etc.; the second part (2) is *physiological*, or has to do with functions or actions.

The morphological part of the definition, "alike in appearance," admits of variations. It is well known that of very many animals and plants there are *varieties*, differing more or less in appearance, and that individuals of two different varieties, interbreeding, will produce fertile offspring. For this reason we must consider these two varieties to belong to one and the same species. On the other hand, two animals or plants, differing more or less in appearance, which will not produce fertile offspring between each other, must be considered to belong to different species.

Practically, in the study of insects, we can very rarely apply the second or physiological part of our definition. We must, therefore, rely to a very great extent on the morphological part. If we meet with two insects differing in structure, form, color, etc., or any or all of these characteristics, we must consider them as of different species, either until we learn of other insects intermediate between these two, and which "quite bridge over the difference previously supposed to exist" between them, or until we learn that these two insects, interbreeding, will produce fertile offspring. But in applying these principles in our study, we must be cautious about two things: in affirming the existence of "new," that is, undescribed species, based on the existence of single, more or less doubtful specimens; —— and in regarding as of different species, the two dissimilar sexes of one and the same species.

But after having attempted thus much in explanation of what a species is, it cannot be too strongly insisted that *no hard and fast lines exist in nature to separate species.* Indeed, the designation of certain groups as "species," "genera," "orders,"

* Experience has shown that it is well to point out that the singular and the plural o this word are spelled alike—*species*.

† In the preparation of this paper the writer is partly indebted to Prof. St. George Mivart's work on "The Cat," chap. xii. 1881.

etc., is rather for purposes of convenience than as statements of absolute differences.

Groups of species form *genera.* A genus cannot be easily defined, even in the imperfect way in which we have defined a species. All the species belonging to the same genus possess certain structural characters in common.

Groups of genera form *families;* groups of families form *orders;* groups of orders form *classes.* Two classes differ from each other by characters more widely different than those which divide two orders, and so on down the scale. Intermediate groups, such as *subclasses*, between classes and orders; *suborders*, between orders and families; *subfamilies*, between families and genera; and *subgenera*, between genera and species, are also employed in classification. A *tribe* is a division sometimes placed between a family and a subfamily; sometimes between a family and an order.

The scientific nomenclature employed for insects (as for all animals and plants) is to give to each species two names of either Greek or Latin form. Thus, the name of the Honey Bee is *Apis mellifica.* The first name is *generic*, the second *specific.* A familiar comparison is that which likens the generic name to a person's surname, the specific name to his individual, or Christian name. This binomial nomenclature is dated from the time of Carl von Linné (Linnaeus, b. 1707, d. 1778), the great Swedish systematist. Linné's genera, in very many cases, correspond to our present families, or even suborders. The constant discovery of species unknown to Linné, rendered his genera large and unwieldy, and revealed characters for the subdivision of his genera into smaller genera. The abbreviated name of the author who first proposed the name of the insect in question, usually follows the specific name. Although usage in this respect varies, it is best that the author's name should be that of him who first gave the specific name, regardless of the genus in which he placed it.

It has frequently happened that the same species of insect has received several specific names from different authors, due to such causes as the insufficiency of previous descriptions, describing two dissimilar sexes of the same species as different species, ignorance of the existence of previous descriptions, insufficiency of the characters given as separating two species at one time presumed to be distinct, etc. In such cases *the* name of the spe-

cies is to be the one first given to it, or in some fewer cases, that one which has been most commonly used. The other names are *synonyms*. To determine the correct name of a species and its synonymy is very frequently a most difficult task, and in some cases can only be decided by a comparison of the types of the descriptions concerned.

Family names are usually formed from the name of the principal genus with the termination *idæ* added. To a less extent subfamily names end in *inæ*, also formed from generic names.

The *type* of a genus is that species which best represents the characters of that genus; the *typical* genus or family, is the most representative genus or family of the larger group to which it belongs. The *type* or *types* of a species are the individual specimens from which the species was described. P. P. C.

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COMPOSIA FIDELISSIMA *versus* C. OLYMPIA.

BY HARRISON G. DYAR.

On opening the December number of ENTOMOLOGICAL NEWS I was pleased to see Prof. French's excellent figure of *Composia olympia* Butl., but I wish to state that it does not differ in any particular from my examples of *C. fidelissima* H. S., and that there is only one species of *Composia* now known from Florida.

The question resolves itself into one of the correct determination of the species, and I append Herrich-Schaeffer's description; that of Mr. Butler I have not been able to see. Further than this I have seen in the American Museum of Natural History, by the kindness of Mr. Beutenmüller, two specimens of this species, which, I am informed, are the ones that were before Mr. Grote at the time of his writing on the Zygænidæ of Cuba,* where they are referred to as *fidelissima*. It is possible that Mr. Butler has redescribed this species under the name *olympia*, but this point I am not now in a position to decide.

Composia fidelissima Her.-Sch.

1866—Her.-Sch., Cor. Bl. Reg. No. 9, p. 132.

1867—Grote, Proc. Ent. Soc. Phil. vi, 303.

". . . . Nigra, cyaneonitida, punctis acpitis, thoracis et baseos alarum anter. niveis; maculis niveis ante limbum alarum omnium, præterea seriebus duabus costalibus anteriorum, maculisque tribus purpureis versus basin costæ."

* Proc. Ent. Soc. Phil.

Unless there are two closely-allied species of *Composia* in Cuba the above description applies well to the present form, except that the underside is not described.

NOTE ON THE HABIT OF COMPOSIA FIDELISSIMA H.-S.—Examples of this species were taken by me on the east shore of Lake Worth, Florida, as already noted in these pages, and they exhibited a means of defence which I have not observed in any other moth. When captured, so that it was unable to fly, the insect, by expanding and contracting its abdomen, forced a column of yellowish froth out of the centre of its thorax above. The froth was of about the consistency of soap-suds, and the little bubbles, of which it was composed, "went out" after a time leaving a yellow stain. All that were taken, including individuals of both sexes, behaved in this manner, with the exception of two, in one of which the froth exuded from a point in the underside of the abdomen, and in the other from the end of a broken vein of one hind wing. It would appear as if this froth was formed from the blood of the insect, which was forced out by the pressure of contracting the abdomen from the point of least resistance, usually the centre of the thorax, where there is probably a small aperture. HARRISON G. DYAR.

A CONTRIBUTION TO THE ODONATA OF MAINE.

Specimens in the Maine State College Collection, or taken near Orono, Penobscot County, Me., in 1890.

BY F. L. HARVEY.

Tribe I.—AGRIONINA.

Subfamily 1.—CALOPTERYGINA.

1. *Calopteryx maculata* Beauvois.—Common over running water. Chemo Stream, Bradley, July. Several pairs taken mating. The female usually, when followed by the male, comes to rest on the alder bushes. The male flies over her and seizes her by the neck; she then turns her abdomen under to the second segment of the male.

2. *Calopteryx æquabilis* Say.—Scarce; only one pair taken July. Flying over water with the above.

Subfamily 2.—AGRIONINA.

3. *Argia violacea* Hagen.—Chemo Stream, July 15th; Otter Creek, August 30th; over bogs and ponds. Common.

4. *Argia putrida* Hagen.—August 8th; over dry road. Rather common.

5. *Argia apicalis* Say.—August 8th; over dry road with above. A single ♀.

6. *Ischnura verticalis* Say.—Chemo bog, July; Frog Pond, Orono, September 3d; several pairs mating. This species had the habit of lighting on the surface of confervæ, and flying so close to the water they were hard to take with a net.

♀ orange form.* Not rare over Chemo bog. July.

(To be continued.)

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

☞ See change of wording in notice of Identification of Insects.

FROM A FORMER SUBSCRIBER.—I have no intention of taking the NEWS another year. It is too advanced for me; it shoots over my head and seldom hits me.

QUERY.—Has any entomologist noticed the effect of thunder storms upon larva? It has been a source of considerable thought to me that this may be one of the causes of the scarcity of certain common species of our fauna. I base the idea on the following experience: sometime ago I received a quill of *Saturnia perneyi* eggs, which in due time produced larva, but very early, and I had quite a task to discover the food-plant. I had received information with the eggs "that they fed on oak." I tried all the oaks I could think of, and nearly lost all my larva; at last I tried

* Following my identifications of Miss Wadsworth's Odonata, Prof. Harvey had referred the orange females to *Ramburii* Selys. I am now satisfied that the specimens quoted in Miss Wadsworth's list as "*I. Ramburii* female orange var." (ENT. NEWS, I, p. 36, No. 4) are really the orange females of *verticalis*. With Prof. Harvey's permission I have made a similar change in his MS. The orange females of *verticalis* have a narrow humeral black stripe on each side of the dorsum of the thorax, and the 1st, 2d and basal part of the 3d abdominal segment are orange on the dorsum. The orange females of *Ramburii* have no humeral thoracic stripe, and the orange at the base of the abdominal dorsum is confined to the first and the base of the second segment.—PHILIP P. CALVERT.

Pin Oak, which they fed on readily, and I succeeded in getting several imagos. From a pair of these I started the second brood, now knowing the food-plant I lost none by starvation. During the latter part of July I had 133 larva between the second and third moults; my breeding-box was covered with wire, such as is used for window-screens, etc., and was placed near an open window, on the second floor, facing West. During the afternoon a terrific thunder storm raged, the lightning vivid and close. During the storm I went to close the window when I found a number of the larva hanging limp and dead over the boughs of the food. After the storm I took from the cage 71 dead larva. The rest appeared all right, but somewhat sluggish for a day or so; during the early part of August, and between the third and fourth moult, we had a similar storm, with the same effect on the larva, for, on the next day, I found all dead but 13, which I succeeded in raising to imagines. Two years ago I was raising a brood of *Telea polyphemus*, which you notice is closely allied to the former, when the same phenomena took place, and I lost nearly all the brood. Was it the electricity, the heavy thunder claps, or natural causes? Has any entomologist had similar experience with other species?

JAMES S. JOHNSON.

THE larvæ of the *Papilio anchisiades* live on the lime or orange trees, which they do a good deal of harm to. When young they are of a dirty yellowish red color, glossy and quasi-transparent; when full grown they are about two inches long, of a dark brown color with irregular markings of cream color. I captured a group of ten on the 18th of July, 1889, on the leaves of a lime tree, the branch having over 100 leaves. I cut this branch from the trunk of the tree, placed it in my breeding cages at six P.M.; revisited it on the next day and found only the bare stalks of the branch, all of the leaves having been consumed. The larvæ feed at night, and in the day are seen grouped together in various numbers one over the other; when disturbed, like all caterpillars of the genus *Papilio*, they emit two horns from the ring immediately preceding the head, which is the thoracic portion of the future adult, giving off at the same time a most infectious smell. I always thought that this smell emanated from the protrusion of the horns, but I noticed that at that moment of throwing them off, they discharged a greenish liquid from their mouths which I ascertained to be the substance that smelled. I fed them up to the 16th of August, when they were transformed into chrysalids. In this stage they are very much, both in color and shape, like a piece of decayed wood. The caterpillar before completing its transformation spends about 24 hours motionless on the spot where it is to effect the change, fixes itself tightly with a gummy substance by the anus; then provides two strings which are passed higher up, and, as soon as ready, lets go the place where it held with its legs, and the wonderful motionless, though living insect, lays there at an angle of 45 for 17 days, for on the 2d of September I contemplated the marvellous metamorphosis. There was the *Papilio anchisiades* weak and almost helpless for about three hours, but soon to be seen flitting about the lime tree.—H. CARACCIOLO, Trinidad.

Vanessa urticæ.—From Oakland, Cal., I received two specimens of a year ago. They were taken in suburbs of Oakland by the children of a friend of mine in the Summer or Autumn of 1889. They arrived with a lot of diurnals containing a number of *V. californica* in the Spring of 1890, and, inasmuch as the most of those *Vanessa* were oily, I did not relax specimens until I had time to de-oil them, and when I discovered *V. urticæ* among the lot, was puzzled to know what they were. I had no European specimens in my collection. It is fully forty years ago since I took any in my native land, and had forgotten what little I then knew of this species. I possess Emmons' "Agricult. Nat. History of New York," in which an illustration is given, which agrees perfectly with my *V. urticæ*.

In referring to Dr. H. Strecker's "Synonymical Catalogue of Macrolepidoptera" 1878, I find under genus *Vanessa*, page 133, the following foot-note: "Emmons, in 'Agr. Nat. Hist.' N. Y., v, p. 209, t. 46 (1854), describes and figures *V. urticæ*, stating that it occurred in New York,—*of course erroneously, as no authenticated instance of its capture in this country is known.*" Italics are mine.

My entomological literature is very limited, and I have no knowledge whether its capture in this country is reported or not. I took a specimen to the assistant of Mr. B. Neumoegen, Mr. J. Doll, and the latter confirmed that it was *V. urticæ*, but doubted its occurrence in this country until I assured him that it was taken in California.

My friend or his children are not entomologists, and I had to instruct them by letter where and how to capture Lepidoptera, and many of those first received were anything but perfect specimens. In coloring, *V. urticæ* are good, but devoid of antennæ. One of those children had a fondness for studying insects, and I have succeeded in keeping him, a eleven-year old boy, busy taking many nice specimens for me, inasmuch as he now understands better how to handle Lepidoptera.

Richard E. Kunze, M.D.

Mr. A. Sidney Olliff, late assistant in the museum, Sidney, Australia, has been appointed to the newly-instituted office of Government Entomologist in the Department of Agriculture, New South Wales. His duties will be chiefly the study of insects affecting fruits and crops, whether injurious or beneficial, and publishing reports on the results of the information of farmers and horticulturists. According to the latest news as to the new insect pest, Mr. Olliff will not lack employment.

Egg Parasites.—From a group of eggs similar to those sent to the Academy, there escaped a number of flies kindly identified by Mr. L. O. Howard as a new species of *Hadronotus*, a proctotrupid of the subfamily Scelioninæ. The present group, apparently alike, though lighter in color, being found upon a green stem, was placed in a bottle with a little water to maintain the vegetable growth. The eggs are of a light bronze color, oval, with a network of surface markings and a crown of spines near the upper end. From them hatched an equal number of hemipterous larvæ that at first gathered upon the underside of a leaf. Desiring to learn what

the mature insect was to which the *Hadronotus* had acted as an egg parasite, an attempt was made to raise these larvæ, but they evidently were not vegetable feeders, for after shedding their first skins they died one after another, never having attached themselves to the stem. Subsequently we were informed by Mr. Howard that the eggs from which the *Hadronotus* issued are those of the common *Podisus spinosus*, and that he finds that Prof. Riley has in the National Museum collection the same parasite reared from the eggs of the same species by Mr. Schwarz at Selma, Ala., in September, 1880.—EDWARD POTTS.

HABITS OF BEES.—On the north side of a depressed roadway at Wawa, Pa., for some hundreds of feet, the perpendicular bank of rotten rock through a depth of about two feet below the sod, was found to be covered with small perforations resembling shot marks. These were occupied by a small, solitary bee, identified as *Halictus confusus* Smith, that during the months of July and August, and most abundantly during the latter month, hovered along the bank, sometimes laden with pollen dust, each seeking its own proper opening. Frequently, on alighting, one would be met at the door of a hole by a janitor who stood on the watch, its cervical head just visible at the entrance. The bee never tried to force its way in, but at once sought another hole. To ascertain the depth of these excavations, we probed a large number with slender grass stems, and in many cases could only penetrate four or five inches. In others, however, a foot was reached easily, and in one instance eighteen inches. The bees were most active in the hot sunlight.—EDWARD POTTS.

A DISPLACEMENT.—*Phyllotretra vittata*, always a common species in the vicinity of Philadelphia, especially below the city, on both sides of the Delaware River, seemed to be completely displaced last season by *P. sinuata*. To the best of the writer's knowledge *P. sinuata* was previously unknown to this section, but appeared in great numbers during June and July. But a few isolated specimens of *P. vittata* were noted during the season, it being almost as unusual to find as *P. bipustulata*.—C. LIEBECK.

Limnichus punctatus and *Heterocerus pusillus* were taken somewhat abundantly in an abandoned iron-ore pit in Montgomery County, Pennsylvania, during June. Small pools of water at the bottom furnished the means to drench the sloping sides of the pit and washing out quite a number of each species. *H. pusillus* has not heretofore been recorded from points east of Allegheny, Pa. All the specimens of *L. punctatus*, upwards of forty in number, were taken from a space not more than three feet square. Although the pit was a large one, none were taken outside of this limited space. *H. pusillus*, however, was scattered over the entire place.—CHAS. LIEBECK.

THE inclosed slip is from one of our papers. To some inquirers about this bug I stated I thought it a *real lightning bug*, but some are disposed to think it a Humbug, but I objected, that such a bug was unknown in Philadelphia.—JOHN HAMILTON.

Inoculated with Electricity.—Philadelphia, Dec. 30. Physicians and medical students have been studying with great interest a case without a parallel, so far as known. Little Mamie Lurker, walking on Girard Avenue a few days ago with her aunt, suddenly stopped, and, putting up her hands to her face, screamed, "I am shot." The aunt seized the child's hands, and immediately staggered back as if she had received an electric shock. A crowd speedily gathered, and a man crushed with his foot a peculiar bright-hued bug, bottle-shaped and hard-shelled, which, falling from a wire overhead, had dropped on the girl's face and stung her.

A bright crimson spot on Mamie's cheek showed where the bug had made the wound, and evidently inoculated her with the electricity with which it was charged by being in contact with the wire. Little would have been thought of the accident had it not been for the peculiar symptoms of the girl, who was nervous and uneasy, and whose grasp sent an indefinable tingling sensation to the hands of everybody who touched her.

Dr. De Beust diagnosed the case as bullia, or vascular poisoning, and administered the remedies usual in cases of that kind. To his astonishment, however, the bright-hued sore on the cheek was followed by other bright-hued eruptions on every part of the body, each one emitting the same peculiar tingling sensation when touched. In his opinion the bug was of a Brazilian species brought to this country in the year of the centennial. The insect in itself is not known to be poisonous, and is distinguished for its peculiar bottle-shaped appearance.

The patient is now considered out of danger, after unremitting attention on the part of the physician, but still suffers from the inoculated electric bite.

Our collector (News) spent a week under the electric lights before he succeeded in getting a specimen. This was sent to the Determiner who has charge of the Department of Identification of Insects; he recognized the species as *Electricia tomfooleryensis* De Bust.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Twelve names, if possible, will appear in each issue of News, according to number. Address packages to Entomological News, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

A. G. Weeks.—1, *Junonia orithya;* 2, *Byblia ilithyia;* 3, *Ergolis ariadne;* 4, *Ixias marianne* ♀; 5, *Junonia lemonias;* 7, *Diadema misippus* ♀; 8, *Euplœa core;* 9, *Pyrrhogyra tipha;* 11, *Eunica monima;* 12, *Danais gilippus*, var. *cleophile;* 13, *Danais archippus;* 14, *Papilio aristolochiæ;* 15, *Callidryas pomona;* 16, *Callidryas pomona;* 17, *Callidryas pomona;* 18, *Callidryas pomona;* 19, *Idmais* sp. ♂; 20, *Diadema misippus* ♂; 21, *Callidryas pyranthe;* 22, *Idmais* sp. ♀; 23, *Junonia œnone*, var. *hierta;* 24, *Pieris mesentina*; 26, *Diadema misippus* ♀.

RALPH HOPLING.—1, *Bradycellus rupestris;* 2, *Cratacanthus dubius;* 3, *Platynus nutans;* 4, *Pterostichus mutus;* 5, *Harpalus viridiæneus;* 6, *Melanophila longipes;* 7, *lost;* 8, *Melanotus communis;* 9, *Elaphidion villosum;* 10, *Elaphidion parallelum;* 11, *Tenebrionellus molitor;* 12, *Tenebrionellus obscurus.*

G. D. B. Lot 2.—1, *Serica sericea;* 2, *Doryphora clivicollis;* 3, *Staphylinus cinnamopterus;* 4, *Cardiophorus convexus;* 5, *Odontota nervosa;* 6, *Paria 6-notata;* 7, *Corymbites tarsalis;* 8, *Podabrus modestus;* 9, *Pterostichus lucublandus;* 10, *Limonius griseus;* 11, *Lucidota atra;* 12, *Melanotus fissilis.*

F. H. HILLMAN.—1, *Dendroctonus terebrans;* 2, *Nemognatha apicalis;* 3, *Cyclocephala longula;* 4, *Megilla vittigera;* 5, *Aphodius nevadensis;* 6, *Lina scripta* var.; 7, *Saprinus lugens;* 8, *Coniontis obesa;* 9, *Nitidula zicczac;* 10, *Notoxus calcaratus;* 11, *Tomicus pini;* 12, *Calospasta mirabilis.*

W. M. HILL.—1, *Clinidium sculptile;* 2, *Megalodacne heros;* 3, *Brontes dubius;* 4, *Onthophagus hecate;* 5, *Slenolophus conjunctus;* 6, *Boletotherus bifurcus;* 7, *Coptocycla guttata;* 8, *Anthonomus* sp.; 9, *Atœnius cognatus.*

W. C. WOOD.—1, *Apristus subsulcatus;* 2, *Amara musculus;* 3, *Amara chalcea;* 4, *Atranus pubescens;* 5, *Bembidium contractum;* 6, *Tachys xanthopus?;* 7, *Amara* sp.; 8, *Platynus punctiformis;* 10, *Platydema americanum;* 11, *Pterostichus hicublandus;* 12, *Phaleria testacea.*

D. B. YOUNG.—1, *Tetraopes tetraophthalmus;* 2, *Typocerus velutinus;* 3, *Elaphrus ruscarius;* 4, *Phellopsis obcordata;* 5, *Hister interruptus;* 6, *Chrysomela philadelphica;* 7, *Chrysomela similis;* 8, *Geotrupes Balyi;* 9, *Dicerca divaricata.*

F. C. HARVEY.—1, *Ptinus brunneus.*

Entomological Literature.

NOTES ON THE HABITS AND EARLIER STAGES OF *Cryptophasia unipunctata*, by Henry Edwards (from the Proceedings Linnean Society of New South Wales, vol. v).

THE ENTOMOLOGIST, January, 1891.—The sexes of Lepidoptera, by W. F. de Vismes Kane. Notes on the Lepidoptera of Chiltern Hills, by A. J. Spiller. A Preliminary List of the Insect Fauna of Middlesex, by T. D. A. Cockerell. Contributions to the Chemistry of Insect Colors, by F. H. Perry Coste.—For February, 1891.—Remarks on *Meana strigilis, M. fasciuncula,* and a probable new species of the genus, by Richard South. The Habits and Life-history of the New Zealand glow-worm, by G. V. Hudson. A Preliminary List of the Insects of the Insect Fauna of Middlesex, by T. D. A. Cockerell. Notes on British Lepidoptera; extracted from Continental journals, by W. Warren. Contributions to the Chemistry of Insect Colors, by F. H. Perry Coste. Coleoptera from Kulu, in

N. W. India, by W. H. Bates. New species of Rhopalocera from N. W. China, by J. H. Leech. Descriptions of some new Phytophagous Coleoptera from India, by Martin Jacoby.

Entomologist's Monthly Magazine, January, 1891.—On certain British Species of *Conchylis*, by Lord Walsingham. Can *Deilephila galii* be found in the larval state every year in England? by W. H. Tugwell. *Gelechia sparsiciliella* n. sp , by C. G. Barrett. *Symmoca signatella*, H.-S., a recent addition to the British fauna, by A. F. Griffith. A Fortnight in Algeria, with descriptions of new Lepidoptera, by E. Meyrick. Occurrence at Portland of *Tenia subtilella*, a species new to the British fauna, by N. M. Richardson. On the British species of the genus *Pityophthorus*, by W. F. Blandford. On the Oviposition of *Metœcus paradoxus*, by Algernon Chapman. Note on a new *Cicindela* from North Japan, by G. Lewis. On the British species of the genus *Cicadula*, by James Edwards.

Pennsylvania and New Jersey Spiders of the Family Lycosidæ, by Witmer Stone (Proc. Acad. Nat. Sci. 1890, p. 420). A table of the genera and species by which they may be determined is given, and the species described in full. Three new species are described: *Pirata elegans*, *P. marxi* and *Pardosa nigra*.

Bibliographical Catalogue of the described transformations of N. American Coleoptera, by Wm. Beutenmüller (Jour. N. Y. Microscopical Society, vol. vii, No. 1). Those interested in the subject owe thanks to Mr. Beutenmüller for a very useful work, and one that has cost him much time and labor.

List of the Diurnal Lepidoptera taken by Mr. Wm. Doherty, of Cincinnati, in Celebes, June and July, 1887, with descriptions of some apparently new forms, by Rev. W. J. Holland (Proc. Bost. Nat. Hist. Soc. 1890, pages 52 to 79).

Sixth Report of the Injurious and other Insects of the State of New York, by J. A. Lintner, Ph.D., State Entomologist. This contains the usual amount of interesting subjects in economic entomology, with a very useful and complete index.

University of Nevada Agricultural Experiment Station, Bull. No. 8, by F. H. Hillman. The Codling moth (*Carpocapsa pomonella*), its life-history, and remedies for its extermination. Bulletin No. 9.—A Serious Rose Pest (*Lithophane antennata*). Bulletin No. 10.—Plant-lice infesting the Apple (illustrated). Bulletin No. 11.—The Pear and Cherry Slug (*Selandria cerasi*).

Purdue University Agricultural Experiment Station, Bulletin No. 33, vol. ii, Lafayette, Ind.—Entomological Notes, by T. M. Webster. Experiments with the Plum Curculio. Notes on Strawberry Insects, *Tyloderma fragariæ*. The field cricket, *Haltica ignita*. Some hitherto unrecorded Enemies of Raspberries and Blackberries, *Solenopsis fugax*, *Limonus auripilus*, *Carpophilus brachypterus*, *Inlus impressus*, *Cosmopepla carnifex*.

Biologia Centrali-Americana, Part 39, November, 1890.—Vol. iii, part 1, by G. H. Horn (pp. 193–257, pl. x); vol. iv, part 2, by G. C. Champion (pl. x); vol. iv, part 3, by D. Sharp (41–56); vol. vi, part 1, Supplement, by M. Jacoby (pp. 217–224). Hymenoptera: vol. ii, by C. Cameron (pl. 7). Lepidoptera Rhopalocera: vol. ii, by F. D. Godman and O. Salvin (plates 68, 69). Diptera: vol. ii, by F. M. Van der Wulp (pp. 201–208).

Nat. Hist. of Victoria.—Prodromus of the Zoology of Victoria, Decade 20, by Fred. McCoy. Life-history of *Chelepteryx collesi* with colored figures of imago, larva, chrysalis, cocoon, etc.; also of *Pyrameis itea* and *P. kershawi*.

The Annals and Magazine of Natural History, vol. vii, No. 37. —Notes on Longicorn Coleoptera of the Group Cerambycinæ, with descriptions of new genera and species, by Charles J. Gahan. List of Lepidoptera in a collection made by Emin Pasha in Central Africa, by Arthur G. Butler. Descriptions of ten new species of butterflies from the northwest coast of Madagascar, by H. Grose Smith. Description of two new Scarabæidæ of the genus *Phanæus*, by C. O. Waterhouse. Descriptions of new species of Lepidoptera collected by Mr. Herbert Ward at Bangala, on the Congo, by Emily Mary Sharpe. Descriptions of eight new species of Chalcosiidæ, by Herbert Druce. A few remarks on Prof. Packard's papers entitled, "Life-history of *Drepana arcuata*," and "Hints on the Evolution of the Bristles, Spines and Tubercles of certain Caterpillars," by A. G. Butler. Description of a new genus and species of Rhyncophorus Coleoptera, by D. Sharp.

The Transactions of the Entomological Society of London, Part 4, 1890.*—A Catalogue of the Pyralidina of Sikkim, collected by H. J. Elwes and the late Otto Möller, by Pieter C. T. Snellen, with notes by H. J. Elwes. On a species of Aphideous insects infesting the bread-fruit trees in Ceylon, by Prof. John O. Westwood. Further notes on the synonymy of the genera of Noctuites, by A. G. Butler.

Records of the Australian Museum, vol. i, No. 5, Sydney.—Coleoptera: Cicindelidæ, Carabidæ and Buprestidæ, by Thomas G. Sloane, with descriptions of new species.

Annals of the New York Academy of Sciences, vol. v, Nos. 9 to 12.—Coleopterological Notices, by Thomas L. Casey, mostly devoted to Tenebrionidæ, with descriptions of new species, etc.

Archives de Zoologie Experimentale et Generale, 2e serie, v suppl., 1887–1890.—Contribution to the Study of the Brain in the tracheate Arthropods, by G. Saint Remy; 14 plates, 274 pages. The present paper treats of the Myriapoda, Arachnida and Onychophora.

Zoological Record for 1889.—Insecta, by Dr. David Sharp.

* Three plates; two colored.

Compte-Rendu. Societe Entomologique de Belgique, Dec. 6, '90. —Note on the Buprestidæ of Chota-Nagpore,* by C. Kerremans. Note on some Coleoptera Heteromera of Belgium, by L. Coucke. Note on the Trictenotomidæ, Prionidæ and Cerambycidæ of Chota-Nagpore,* by A. Lameere; *Kunbir*, *Sakuntala*, n. gen. Annotations to the lists of indigenous carnivorous Coleoptera, by A. P. de Borre.

Species des Hymenopteres d'Europe et d'Algerie, by Ed. Andre, 37e Fascicule, Nov. 1, 1890, 4 plates.

Archiv fur Mikroscopische Anatomie, xxxvii, heft 4, 1890. The malodoriferous glands of the Forficulidæ, by Dr. J. Vosseler; 1 plate.

Berliner Entomologische Zeitschrift, xxxv, heft 2, 1890. The group of the Hymenopterous genera *Leucospis* Fab., *Polistomorpha* Westw., and *Marres* Walk.: Monograph,* by A. Schletter; 2 plates, *L. Riteyi*, Mex., n sp. *Hilarimorpha* Schin. is a Leptid, C. R. Osten Sacken.

Zoologischer Anzeiger, Jan. 5, 1891.—On the embryology of *Phalangium*, V. Faussek.

Le Naturaliste, Jan. 15, 1891.—Diagnoses of new Acarina,* by Dr. E. Trouessart. Entomological Recreation [on the larva of *Teresias serra* Steph.], by M. Decaux.

Myriapoda Regni Hungariæ e Commissione Regiæ Societatis Hungaricæ Scientiarum Naturalium,* by Dr. Eugenius Daday de Deés. Budapest, 1889, 126 pp., 3 plates. A synopsis of the Myriapoda of Hungary, printed in Magyar, but with the specific, generic and other characters in Latin.

Mittheilungen der Section fur Naturkunde des Osterreichischen Touristen-Club. II. Jahrgang, Wien, 1890.—List of the Arthropoda hitherto found in caves in Europe, by E. Simon, L. Bedel and L. Ganglbauer; comprises Crustacea, Arachnida, Myriapoda, Coleoptera, Orthoptera, Thysanura and Diptera.

Schriften der Naturforschenden Gesellschaft in Danzig; Neue Folge, VII Bd., 3 heft, 1890.—Life-history of two snout beetles and Insects on ferns, by C. G. A. Brischke. Butterflies caught by *Drosera angelica* Huds., by Dr. H. von Klinggraeff. Addition to Bachman's contributions to the Dipterous fauna of the provinces of West and East Prussia, and Some Ichneumonidæ and Saw-flies entirely new, or new to West Prussia, by C. G. A. Brischke.

Il Naturalista Siciliano, November-December, 1890.—Contributions to the Lepidopterological Fauna of Sicily; descriptions of new species,* by L. Failla-Tedaldi. Studies in Sicilian entomology [Otiorhynchidæ], by F. Vitale. The light produced by insects, by E. Arculeo.

* Contains new species other than North American.

JENAISCHE ZEITSCHRIFT FUR NATURWISSENSCHAFT, XXV, heft 1 and 2, Jena, 1890.—*Hemidiptera Haeckelii*, by Dr. N. Leon. 1 plate. The poison apparatus of *Formica rufa*, a reduced organ, by Dr. O. W. Beyer, 2 pls.

JAHRBUCHER DES NASSAUISCHEN VEREINS FUR NATURKUNDE, Jahrgang 43, Wiesbaden, 1890.—Contributions to the Lepidopterous Fauna of the Malay Archipelago, vi. On the Butterflies of East Java,* by Dr. A. Pagenstecher.

Doings of Societies.

ENTOMOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES.—A regular meeting was held Jan. 22, 1891, Director Dr. Horn in the chair. Members present: E. T. Cresson, Martindale, Ridings, G. B. Cresson and Skinner. Associates: Calvert, Westcott, Fox, E. Seeber, Liebeck and Dr. Skinner. Mr. Neel visitor. Dr. Horn stated that he had been studying the species of *Agrilus*, and found them more numerous and more difficult than he had imagined, but he hoped to get them in such shape that students could do more with them. The characters of the claws were discussed, and the speaker said it was necessary to see the claws of both sexes and the front and hind claws also. He proposed to divide them into groups separated by different types of claws. The difficulties of the subject were illustrated by drawings on the blackboard, and characters of more or less value were mentioned and considered at length. Mr. Calvert spoke on the genus *Ischnura*, stating that there were two local species: *verticalis* Say and *Ramburii* Selys. Partly owing to the imperfect description in Dr. Hagen's Synopsis of 1861, he had hitherto mistaken the orange females of both *verticalis* and *Ramburii* as belonging to *Ramburii*. He believed that the orange females of *verticalis* could be distinguished from those of *Ramburii* by having a black lateral dorsal thoracic stripe wanting in *Ramburii*. Mr. Martindale mentioned that in the January number of NEWS was an article by Mrs. Slosson on *P. assimilans*, which showed how species could be lost for even a great number of years and then refound. The only specimens known until Mrs. Slosson's rediscovery were the two worn and damaged specimens in the British Museum. He exhibited colored figures of these interesting moths intended for ENTOMOLOGICAL NEWS. He also mentioned here rediscovery of *Seirarctia echo*. Dr. Horn called attention to the fact that, in 1850, on Dr. LeConte'e return from California, he described a species—*Acrepis maculata*. The type of this went to the bottom on its way to Europe. It was recently rediscovered by the speaker in a collection made by the late H. K. Morrison, and none have been found since.

* Contains new species other than North American.

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ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

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A Revision of the Species of Euclea, Parasa and Packardia, with Notes on Adoneta, Monoleuca and Varina ornata Neum.

BY HARRISON G. DYAR.

(This paper will appear in its entirety in the Trans. Amer. Ent. Soc. 1891.)

After studying a series of specimens kindly loaned to me by Mr. E. L. Graef, as well as those in my own collection, I have reached the conclusion that the species *Euclea cippus* Cram. includes the considerable range in variation represented by figs. 1 to 11 on Plate IV.

Euclea cippus var. **interjecta** n. var. (Pl. iv, figs. 7 and 8.)

A row of green dots, sometimes partly confluent, connects the sub-apical spot with the outer part of the sub-basal spot.

Euclea nana n. sp. (Pl. iv, fig. 15.)

Purplish brown, the secondaries a little paler. On the primaries a small, round, discal dot, and two rounded pea-green patches, the sub-apical nearly circular, the sub-basal large, not deeply excavated externally, and both succeeded by orange ferruginous spots, broken on the veins.

Parasa viridus Reak. (Pl. iv, fig. 18.)

My reasons for naming the species of *Parasa*, as above, will appear in the full article in Trans. Amer. Ent. Soc.

Monoleuca subdentosa n. sp. (Pl. iv, fig. 21.)

Allied to *semifascia*, but perhaps a little smaller. Upright band silvery-white, narrow, twice regularly angulated, not crossing median vein nor extending onto fringe. The space between this and the base of the wing is filled in with an ocherous brown shading, paler than the rest of the wing.

EXPLANATION OF PLATE IV.

Figs. 1, 2 and 3, *Euclea cippus*, var. *delphinii* Boisd.
" 4, 5 and 6, *Euclea cippus*, var. *querceti* Her.-Sch.
" 7 and 8, *Euclea cippus*, var. *interjecta* Dyar.
" 9, 10 and 11, *Euclea cippus*, var. *monitor* Pack.
" 12, *Euclea elliotii* Pearsall ♂.
" 13, " " ♀.
" 14, *Euclea pœnulata* Clem. ♂.
" 15, *Euclea nana* Dyar ♂.
" 16, *Euclea incisa* Harv. ♂.
" 17, " " ♀.
" 18, *Parasa viridus* Reak. ♂.
" 19, *Parasa chloris* Her.-Sch. ♂.
" 20, *Monoleuca semifascia* Walk. ♀.
" 21, *Monoleuca subdentosa* Dyar ♀.
" 22, *Packardia elegans* Pack. ♂.
" 23, *Packardia geminata* Pack. ♂.
" 24, *Packardia albipunctata* Pack. ♀.
" 25, " " ♂.

HUNTING CATOCALÆ.

BY JAS. S. JOHNSON.

I have been frequently asked, where do you find so many Catocalæ? And my answer invariably is, in the wood. Yes, but how and when? To these questions I write this answer. To the young collector in entomology his first care is to be a close observer of the habits of insects; I think I can safely say that almost every butterfly and moth has its own peculiarity of flight or resting, or something that distinguishes it from its companions of another species. In hunting for Catocalæ during the day-time, it is well known that when disturbed they will fly generally only

a short distance to another tree, or perhaps not leave the tree on which disturbed, only alight a few feet lower, higher or around on the other side. It is also well known that after being disturbed they are more alert and quicker to take flight, whether it be from sound, sight or shadow of the hunter, I leave for conjecture. The next thing the student must learn is the bark of the trees; all barks are not alike, neither in color, shape, or markings; I mention this for Catocalæ resemble the barks so nearly that one must become practiced to anything out of the line of the usual markings of the tree to detect them.

Now, with this brief introduction, we will go to some piece of wood-land; a good place would be where there is a fair quantity of large trees, some young beech, plenty of underbrush, and better still where the owner does not turn his cattle in. On arriving we arrange our tools and collecting-box; the collecting-box should be made of as light material as possible, book-shaped, cork-lined, and in depth to pin on each side, hang by a strap over the shoulder, and a little in front of the body on the left side, this will give the collector ample play with both arms and hands. The collecting-bottle can be made either of tin or a wide-mouthed glass jar, and charged with cyanide of potassium or ether; should I be going a long distance I take the former, if near by the latter. To make the former I get from the druggist a glass jar, some four or five inches high, with a mouth not under two inches in diameter, take one ounce or so of cyanide of potassium, break it into small pieces, and put into your jar, then pour on dry plaster of Paris to nearly cover the cyanide, next mix some plaster of Paris with water about the consistency of thick cream, pour this over the rest, about a quarter of an inch thick; when dry your bottle is ready for work. If you use ether, place a wad of raw cotton, say one-half an inch thick at the bottom of the jar and make a tight fitting piece of perforated card board or cork to cover it, charge it by pouring the ether in, about a tablespoonful; keep this well corked, and always take a small vial of ether with you to recharge when necessary. The next instrument, and the most important to me, I call a gig or stabber, made from a metallic pen-holder, or even a smooth stick would do, by fastening on the end three needles, triangular shaped, thus ⁘; this instrument I find extremely useful in capturing any moths at rest, by piercing them through the thorax, they adhering to the instru-

ment. In places where you cannot get your collecting-bottle you can readily take them by this means. Do not take a net for any moth, it spoils all the beauty. Your next and last article is a sapling about four or five feet long, which you can cut in the wood from a bough of a tree or undergrowth; trim it clear of leaves and switches; this is for rubbing or beating the trees to disturb any you have overlooked.

Place your collecting-bottle in your right hand coat pocket, the gig over your ear as a clerk would a pen, the sapling in your right hand, and start through the wood. First we come to some undergrowth or brushy beech tree, rattle among the leaves with your rod and watch results; should you disturb any watch where they alight and go for them, if not move on and try again. We now come to a large tree, examine carefully the bark as far as the eye can reach to the ground, note the layers and fissures of the bark; should you see any V-shaped marking or inverted Λ examine closely, the chances are a Catocala; use your bottle or stabber; after taking off all you see, or if none, then take the rod and go around the tree rubbing it up and down the bark, or beat it a few sharp raps; if any they will fly to a near by tree, watch and go for them, step lightly, move cautiously, steady your hand, you have it. The best time to hunt for them is on a close, hot afternoon between two and five o'clock, more particularly if there has been three or more successive hot days. Yet you can find some at any time of day, I have taken some as early as five o'clock A.M., and all along until sun down, but as the day grows on towards night, the wood becoming dusk, they are prepared for flight and on the alert, and it becomes hard to follow their flight. It is almost useless to go hunting for Catocalæ after a heavy rain or a thunder gust; you may capture a few, but nearly all are battered and torn. I was never successful in this locality by baiting, sugaring or night hunting, having tried several formulæ, perhaps, however, it was because I could not give it the time for a successful issue. My esteemed friend, Dr. James S. Baily (now deceased), was exceedingly fortunate at baiting, near Albany, N. Y., capturing hundreds of fine specimens. The bait he used was composed of sour beer, molasses and brown sugar; he would paint the trees with this mixture during the afternoon and make the captures between 8 o'clock and midnight; sometimes it would be nearly a week before they would take to the bait.

Dr. Hammond and I tried this formula during last Summer, but with little or no success, we also soaked strings of dried apples in the mixture and placed them on the trees with the same result, I then plastered some decayed bananas on the bark of the trees, from which we captured a few Catocalæ and numbers of small Noctuæ. I have no doubt but the decayed fruit if fairly tested and tried would be a success, either bananas or pears. To collect at night you need only your collecting-box, bottle, and a lantern; I painted or baited the trees about waist high and a few inches square, then with a leather belt around the waist, with a dark lantern fastened thereto, I could walk up to the trees with my hands free and plenty of light. I noticed on nights during an electrical storm, *i.e.*, plenty of flashes of heat lightning with no thunder, there were few or no specimens of any kind.

The following table will give the time of appearance of the different species in the vicinity of Frankford, Philadelphia, compiled from my diary of several years. I might remark that north or south of here would make a few days difference either way, and again after a dry hot Spring would make ten or twelve days difference.

	First Capture.	Last Capture.		First Capture.	Last Capture.
C. ilia	June 24	Sept. 8	C. parta	July 21	Oct. 10
coccinata	July 23	Aug. 4	habilis	" 25	Sept. 27
grynea	June 24	July 26	ponderosa	" 26	" 27
ulalume	July 23	Aug. 13	sordida	" 14	July 16
insolabilis	June 25	Sept. 8	cara	Aug. 6	Sept. 13
Angusi	July 29	" 18	var. carissima	" 8	" 10
amica	June 27	" 7	cerogama	" 8	" 2
var. linella	" 27	" 5	desperata	" 9	" 1
ilia var.	" 28	" 8	amatrix	" 9	Oct. 8
serena	" 28	" 5	var. nurus	" 10	Sept. 27
ilia var.	" 28	" 27	Robinsonii	" 10	" 7
flebilis	July 4		piatrix	" 10	Aug. 31
cordelia	June 28	July 21	innubens	" 14	Oct. 6
minuta	July 8	Aug. 13	var. hinda	" 1	Aug. 28
ultronia	" 8	Sept. 8	var. flavidalis	" 15	" 23
var. mopsa	" 9	Aug. 16	var. scintillans.	" 16	" 16
Judith (Levettii)	" 10	Sept. 27	antinympha	" 20	" 28
obscura (residua)	" 16	" 10	concumbens	" 1	" 28
var. simulatilis.	" 10	" 27	unijuga	" 28	Sept. 21
neogama	" 10	Aug. 28	marmorata	Sept. 6	" 6
epione	" 11	Sept. 21	viduata	Aug. 28	" 12
palæogama	" 14	Aug. 22	lacrymosa	" 20	" 21
var. phalanga	" 14	July 21	lacrymosa var.	" 25	" 1
subnata	" 14	" 25	relicta	" 30	" 30
tristis	" 16	Sept. 8			
amasia	" 19	" 10			
retecta	" 19	Aug. 10			

Total, 51 species and varieties.

ELEMENTARY ENTOMOLOGY.

Tenth Paper.—The Orders of Insects.

In the first paper of this series (Ent. News, Vol. I, pp. 72, 73) was indicated the division of the Arthropoda into classes. Of these, the Insecta (Hexapoda) formed the fifth class. The class of insects is divided into orders. Entomologists differ in the classifications which they employ. In this paper will be presented the chief classifications used in this country, without attempting to designate any one classification as the best.

The oldest and the simplest classification is that used in Dr. Packard's "Guide" in the editions previous to the sixth. The class Insecta is divided into three orders: Hexapoda, Arachnida and Myriapoda. The order Hexapoda is divided into the following suborders:

1. **Hymenoptera** (membrane wings*). Head large. Mouth-parts developed both for biting and sucking. Wings small, powerful, with comparatively few and irregularly branched veins. Transformations complete. In the higher† and more typical forms, the first abdominal segment is intimately united with the thorax. Examples: Bees, Wasps, Ants, Sawflies.

2. **Lepidoptera** (scale wings). Body cylindrical, compact. Head small, clypeus large (in proportion). Mouth-parts developed for sucking. Maxillæ prolonged into a tubular "tongue." Mandibles obsolete. Wings broad, regularly veined, covered with minute scales. Transformations complete. Butterflies, Moths.

3. **Diptera** (two wings). Only two wings, the hind pair represented by halteres. Thorax greatly centralized, more or less globular. Mouth-parts developed for sucking. Labrum, and the bristle-like mandibles and maxillæ ensheathed partially within the labium to form a beak. Maxillary palpi present. Transformations complete. Mosquitos, House-flies.

4. **Coleoptera** (sheath wings). Front wings developed as elytra which cover the folded hind wings, and also the two posterior thoracic segments and the abdomen. Mouth-parts developed for biting, Transformations complete. Beetles.

5. **Hemiptera** (half wings). Mouth-parts developed for sucking. The style-like mandibles and maxillæ ensheathed by the labium to form a beak. Labrum small, short. Maxillary palpi absent. Prothorax free, large. Front wings often half horny, half membranous (hemelytra). Transfor-

* As each ordinal name is used for the first time in this paper, it will be followed by a literal translation of the Greek words from which it is formed.

† *I.e.*, more specialized.

mations incomplete. Plant-lice, Scale-insects, Cicadas, Chinch-, Squash- and Bed-bugs, Lice.

6. **Orthoptera** (straight wings). Mouth-parts developed for biting. Front wings developed as tegmina to cover the folded hind wings. Hind legs large, adapted for leaping. Transformations incomplete. Grasshoppers, Crickets, Cockroaches, Earwigs.

7. **Neuroptera** (nerve wings). Wings large, broad, net-veined, membranous. Mouth-parts developed for biting. Transformations complete and incomplete. White Ants, Stone-, May- and Dragonflies, Ant Lions, Fish Moths and Spring Tails.

In the sixth and following editions the Fish Moths and Spring Tails are considered as a distinct order, 8. **Thysanura** (fringe tails) whose characters are wingless, no transformations.

A second classification is that used by Prof. Comstock in his "Introduction to Entomology," 1888, pp. 48, 49:

I. Wingless insects which show no evidences of having descended from winged ancestors (*i.e.*, in which the thorax is simple in structure), and which undergo no metamorphosis (*Synaptera*). Order 1. **Thysanura.**

II. Winged insects; or wingless insects in which this condition is the result of a retrograde development, indicated by the complicated structure of the thorax, or by the presence of wings in closely allied forms (*Pterygogenea*).

1. Metamorphosis incomplete, *Ametabola* (without change).

A. Mouth-parts formed for biting, *i.e.*, with the mandibles and maxillæ in the form of jaws.

a. The two pairs of wings similar in structure, membranous. Order 2. **Pseudoneuroptera** (false Neuroptera).

b. The first pair of wings parchment like (tegmina); the second pair membranous, and folded in plaits longitudinally. Order 3. **Orthoptera.**

B. Mouth-parts intermediate in structure between those of the biting insects and those of the sucking insects, viz, with bristle-like mandibles, and with flat triangular maxillæ. Order 4. **Physopoda** (swelled feet).

C. Mouth-parts formed for sucking, viz., with the mandibles and maxillæ bristle like. Order 5. **Hemiptera.**

2. Metamorphosis complete. *Metabola* (change).

A. Mouth-parts formed for biting.

a. The two pairs of wings similar in structure, membranous, with many veins and cells. Order 6. **Neuroptera.**

b. The first pair of wings (elytra) much thickened, horny throughout their entire length, and meeting in a straight line down the back; the second pair membranous. Order 9. **Coleoptera.**

B. Mouth-parts formed for both biting and sucking, viz., with the mandibles in the form of jaws; and with the maxillæ and labium fitted for taking liquid food. Both pairs of wings membranous, with few veins and cells. Order 10. **Hymenoptera.**

C. Mouth-parts formed for sucking.

a. With four wings clothed with minute, imbricated scales; mandibles rudimentary; maxillæ developed into a sucking tube. Order 7. **Lepidoptera.**

b. With only two wings; hind wings represented by a pair of knobbed, thread-like organs (halteres); mandibles and maxillæ bristle like. Order 8. **Diptera.**

In this classification, Orders 1, 3, 7, 8, 9 and 10 correspond to the similarly named suborders of the "Guide;" 2 (White Ants, Stone-, May- and Dragonflies) and 6 (Ant Lions) correspond to the Neuroptera, and 4 (*Thrips**) and 5 to the Hemiptera of the "Guide."

The classification used by Dr. Packard in his "Entomology for Beginners," second edition, 1889, and which he says† will probably be introduced into the next edition of his "Guide," follows. After the statement of the characters of each order, is placed the common and the generic names of some of the representative insects thereof.

Series I. AMETABOLA.—Metamorphosis incomplete.

Order 1. **Thysanura.**—Wingless, minute, with a spring, or abdomen ending in a pair of caudal stylets; usually no compound eyes; no metamorphoses. Fish moth, *Lepisma;* Spring tail, *Podura.*

2. **Dermaptera** (skin wings).—Body flat; abdomen ending in a forceps; fore wings small, elytra-like; hind wings ample, folded under first pair. Earwig, *Forficula.*

3. **Orthoptera.**—Wings net-veined; fore wings narrow, straight, not often used in flight; hind wings large and folded when at rest under the first pair. Cockroach, *Blatta;* True Locust, *Acridium;* Cricket, *Gryllus,*

4. **Platyptera** (broad wings).—Body usually flattened. Pronotum usually large and square; often wingless. Bird lice, fam. Mallophaga; Stone-fly, *Perla;* Book louse, *Psocus;* White-Ant, *Termes.*

5. **Odonata** (toothed, referring to the mandibles and maxillæ).—Prothorax small; remainder of thorax spherical; both pairs of wings of nearly the same size, net-velned. Larvæ and pupæ aquatic; labium of larva forming a mask. Dragonfly, *Libellula.*

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* "It should be borne in mind that the insect commonly called *The Thrips*, that infests the leaves of grape, is not a member of this order [Physopoda,] but one of the Leaf-hoppers [*Erythroneura*] (family Jassidæ, of the order Hemiptera). The misapplication of the name Thrips to this insect is often the cause of confusion."—Comstock, Intro. p. 124.

† Guide, ninth edition, 1889. Preface.

6. **Plectoptera** (plaited wings).—Mouth-parts nearly obsolete. Wings net-veined; hind pair small, sometimes wanting. Abdomen ending in three filaments. Larvæ aquatic, with large jaws and with gills on the sides of the hind body. Mayfly, *Ephemera.*

7. **Thysanoptera** (fringe wings).—Mouth-parts forming a short conical sucker; palpi present; wings narrow, net-veined, fringed; feet bulbous at the end, without claws. *Thrips.*

8. **Hemiptera.**—Mouth-parts forming a sucking beak. Prothorax usually large; fore wings often thickened at base.. Louse, *Pediculus;* Scale insect, *Coccus;* Plant louse, *Aphis; Cicada;* Chinchbug, *Blissus;* Squashbug, *Anasa;* Bedbug, (*Cimex*), *Acanthia.*

Series II. Metabola.—Metamorphosis complete.

9. **Neuroptera.**—Wings net-veined; mouth-parts free, adapted for biting; ligula large, rounded; pronotum large, square. Larvæ often aquatic. *Corydalis.* Lacewing fly, *Chrysopa;* Ant lion, *Myrmeleon.*

10. **Mecoptera** (length wings).—Wings somewhat net-veined or absent; head lengthened into a beak-like projection. Larvæ like caterpillars. Scorpion fly, *Panorpa.*

11. **Trichoptera** (hair wings).—Wings and body like those of Tineid moths [clothed with hairs]; mandibles obsolete in the imago. Larvæ usually aquatic, living in cases. Caddis fly, *Phryganea.*

12. **Coleoptera.**—Fore wings thick, ensheathing the hinder pair, which are alone used in flight; mouth-parts free, adapted for biting. Beetles, *Carabus, Cicindela, Scarabæus;* Weevil, *Curculio; Chrysomela;* Lady bird, *Coccinella.*

13. **Siphonaptera** (tube, without wings).—Wingless; mouth-parts adapted for sucking. Larvæ maggot-like, but with a well developed head and mouth-parts. Flea, *Pulex.*

14. **Diptera.**—Only two wings; mouth-parts adapted for lapping and sucking. Mosquito, *Culex;* Housefly, *Musca;* Horsefly, *Tabanus.*

15. **Lepidoptera.**—Body and wings covered with scales; maxillæ lengthened into a very long tongue. Larvæ (caterpillars) with abdominal legs. Butterfly, *Papilio;* Moths, *Sphinx, Bombyx, Noctua, Phalæna, Tinea.*

16. **Hymenoptera.**—Wings clear, with few veins; mouth-parts with a variety of functions, *i.e.*, biting, lapping liquids, etc. In the higher families the thorax consists of four segments, the first abdominal segment of the larva being transferred to the thorax in the pupa and imago. Honey Bee, *Apis;* Wasp, *Vespa;* Ant, *Formica;* Ichneumonfly, *Ichneumon;* Gallfly, *Cynips;* Sawfly, *Tenthredo.*

The correspondence of these orders to those of Prof. Comstock is as follows; 1, 8, 12, 15 and 16 to the similarly named orders; 2 and 3 to the Orthoptera; 4, 5 and 6 to the Pseudoneuroptera; 7 to the Physopoda; 9, 10 and 11 to the Neuroptera; 13 and 14 to the Diptera.

In the Standard Natural History, edited by J. S. Kingsley, vol. ii, 1884, the orders are:

1, **Thysanura**; 2, **Dermatoptera**; 3, **Pseudoneuroptera**; 4, **Neuroptera**; 5, **Orthoptera**; 6, **Hemiptera**; 7, **Coleoptera**; 8, **Diptera**; 9, **Aphaniptera** (unseen wings); 10, **Lepidoptera**; 11, **Hymenoptera.**

Here 2 and 9 correspond to the Dermaptera and Siphonaptera of the "Entomology for Beginners;" otherwise the orders correspond to the similarly named orders of Prof. Comstock, except that No. 6 includes both his Hemiptera and Physopoda.

In Claus and Sedgewick's Text Book of Zoölogy, vol. i, 1885, the orders stand:

1, **Thysanura**; 2, **Orthoptera**; 3, **Neuroptera**; 4, **Strepsiptera** (twisted wings); 5, **Rhynchota** (beaked); 6, **Diptera**; 7, **Lepidoptera**; 8, **Coleoptera**; 9, **Hymenoptera.**

Here the Orthoptera includes orders 2, 3 and 4 of Prof. Comstock; the Rhynchota are his Hemiptera; the Strepsiptera (which includes a single family of beetles, Stylopidæ, having only the hind wings developed, the front wings represented by pseudo-halteres) and the Coleoptera are equivalent to his Coleoptera; the other orders are the same as his.

Other names sometimes used as ordinal are **Plecoptera** (folded wings) for the family Perlidæ, Stone flies; **Corrodentia** (gnawers) for the Mallophaga, Psocidæ and Termites; **Homoptera** (same wings) and **Heteroptera** (diverse wings) for two divisions of the Hemiptera, the one having wings of the same thickness throughout, the other with the front wings as hemelytra; **Euplexoptera** (well-folded wings) for Dermaptera.

On comparing the classification from the "Entomology for Beginners" with the others here quoted, it will be seen that the differences between them depend very largely on the answers given to such questions as this: Are the groups Platyptera, Odonata and Plectoptera, for instance, of the same value, *i.e.*, as distinct from each other, as the Lepidoptera are from the Hymenoptera? Ever-widening knowledge alone will settle such questions.

Two things must be remembered in dealing with classification. The first is that very many ordinal, family and generic characters admit of exceptions in the shape of intermediate forms. As Dr. Leidy has said: "Our divisions in nature [are,] to a great extent, matters of convenience."* Secondly, the natural arrangement of the orders and other groups is not linear. It is rather to be compared to the position of countries upon a map, or to the branches of a tree. This latter comparison is especially useful when taken into connection with the evolution of species.

* Lecture of Oct. 10, 1888, at Biological Department, University of Pennsylvania, Philadelphia. See also ENT. NEWS, vol. ii, p. 47, at bottom.

With this the papers on Insects in general conclude. Imperfect as they are, the writer will be repaid for his labor—almost wholly of compilation—if they shall be helpful to any students of Entomology. P. P. C.

The first of a series of elementary papers on Lepidoptera will appear in the May number of ENTOMOLOGICAL NEWS.

INGUROMORPHA SLOSSONII Hy. Edw.

BY HENRY EDWARDS.

On page 183, vol. iii, of "Entomologica Americana," I published, under the above name, a description of a curious Cossid taken by Mrs. A. T. Slosson, in Florida, early in 1887. The species was so unlike anything with which I was familiar, that I concluded it to be new, but before describing it I submitted it to Dr. Packard and Prof. J. B. Smith, to both of whom it was unknown. I therefore placed it on record. Sometime afterwards I forwarded to Mr. A. G. Butler, of the British Museum, a drawing of the insect made by Mrs. Slosson, and was astonished to find from him that the species was = *Cossus basalis* Walk., which is given in the Catal. B. M. p. 1523, with the "country unknown." In this connection I think it advisable to give Walker's description in full, which is as follows:

"Male.—Whitish, moderately stout. Head, palpi and antennæ blackish. Palpi extending as far as the head; third joint acute, conical. Antennæ slightly pectinated, a little longer than the thorax. Abdomen extending for more than half its length beyond the hind wings. Wings narrow, slightly reticulated with minute transverse black marks. Fore wings with a black band near the base, and with a black curved subapical band. Length of the body 6 lines; of the wings 14 lines."

In May, 1888, I visited England, and saw the type in the British Museum, without any record of locality, or other label by which it could be recognized. It seems to me now highly probable that it might be among the specimens taken by Mr. Edward Doubleday during his visit to the United States.

There was no doubt, whatever, of the identity of Walker's type with Mrs. Slosson's specimens. But a greater surprise than

this was in store for me. Early in 1889, business led me to Boston, and, as usual, I visited my friend, Mr. Samuel Henshaw, of the Boston Natural History Society. He showed me the volume of original drawings by Abbot, presented to the Museum by the late Dr. Asa Gray, and on plate 108 of the series I found excellent figures of both ♂ and ♀ of the Cossid, with colored figures also of the larva and pupa. But the ♀ is no other than the beautiful moth described by the late Dr. James Bailey as *Cossula magnifica* ("Papilio," vol. ii, p. 93, 1882). Dr. Bailey's description, with a colored figure of ♂ and ♀ and of the pupa, was republished in Bulletin No. 3, Division of Entomology U. S. Department of Agriculture, 1883, but Dr. Bailey has undoubtedly fallen into an error in figuring what he calls the ♂, as the specimens in his cabinet were both females, and in fact none but females have been known until the discovery of the identity of the species with *C. basalis*, while so accurate an observer as Abbot would not be likely to be confounded in the species. He gives it as one especially familiar to him, as evidenced by his drawings of the early stages. The antennæ are heavily pectinated in both sexes and the neuration would appear to give the species generic rank, so that Dr. Bailey was undoubtedly right in forming a new genus for its reception. The synonymy will, therefore, stand thus:

Genus **COSSULA** Bailey.

Cossus Walk.
Inguromorpha Hy. Edw.

C. basalis Walk. ♂ B. M. Cat. p. 1523, 1856.
Cossula magnifica ♀ Bailey, Papilio, vol. ii, p. 93, 1882.
Inguromorpha Slossonii Hy. Edw. Ent. Am. vol. iii, p. 183, 1888.

The females have been taken by Mr. A. Koebele, near Talahassee, and by Dr. Wittfeld at Indian River, while Mrs. Slosson's ♂ specimen was obtained at Jacksonville at the electric light. The ♂ bears a somewhat superficial resemblance to the same sex of *C. querciperda*. I should like to add that I am convinced that the ♀ type specimen of *C. plagiata* in the British Museum is nothing more than *Robiniæ* ♀, but that *C. populi* Walk. is a very distinct species, differing from any I have seen elsewhere.

A CONTRIBUTION TO THE ODONATA OF MAINE.

Specimens in the Maine State College Collection, or taken near Orono, Penobscot County, Me., in 1890.

BY F. L. HARVEY.

(Continued from p. 51, Vol. II, No. 3.)

7. *Enallagma civile* Hag.—Orono, College Collection.

8. *Enallagma Hageni* Walsh.—Common over Chemo bog.

9. *Nehalennia irene* Hag.—Orono, College Collection.

10. *Lestes hamata* Hag. (*L. forcipata* Hag. Syn. 1861).—September 3d, Frog Pond, Orono. Common.

11. *Lestes forcipata* Ramb. (*L. hamata* Hag. Syn. 1861).—Orono, College Collection.

12. *Lestes rectangularis* Say.—July 15th, September 12th. Over bogs. Common.

13. *Lestes disjuncta* Selys.—July 15th, August 20th, September 3d; over bogs and ponds; several pairs mating. Abundant.

14. *Lestes inequalis* Walsh.—July 15th; Chemo bog. Several males and females.

15. *Lestes unguiculata* Hag.—September 12th. Over bog near Penobscot River.

Tribe II.—ÆSCHNINA.

Subfamily 3.—ÆSCHNINA.

16. *Anax junius* Drury.—Orono, State College Collection.

17. *Æschna janata* Say —Orono, State College Collection.

18. *Æschna constricta* Say.—Orono. Common over small brooks in meadows, August to October.

19. *Æschna verticalis* Hag.—Orono. Common over meadows, bogs and rivers.

We have one specimen that agrees with this species in markings, but the length is 78 mm. Alar expanse 100 mm.; ante cubitals 23; post cubitals 12 on the right wing and ant. cu. 21; p. c. 13 on the left wing. This specimen has a cross vein in the first p. c. of right wing and the seventh p. c. of same wing is very narrow.

20. *Æschna eremita* Scudder.—Orono, College Collection.

21. *Æschna clepsydra?* Say.—Orono, College Collection.

22. *Neuræschna vinosa* Say.—Orono, College Collection.

Subfamily 4.—GOMPHINA.

23. *Gomphus exilis* Selys.—Orono, College Collection.

24. *Gomphus spinosus* Selys.—Orono, College Collection.

25. *Gomphus nævius* Hag.—July 15th, single ♀; Chemo Stream, over water. This specimen was referred to Mr. P. P. Calvert, who made the following note:

"This specimen agrees best with the description of *G. nævius* Hag. (in 4th Additions au Synopsis des Gomphines, p. 57), although there are some slight color difference. *G. nævius* Hag. was described from a ♀ from Pennsylvania. It is stated to be very near *G. albistylus* Hag. (4th Additions, p. 55) described from a ♀ from Maine, and some doubt is expressed whether the two may not be one species. The ♂ of neither has been described. Until they are proved to be the same, this specimen should stand for *G. nævius*, which it resembles more than *G. albistylus*."

26. *Hagenius brevistylus* Selys.—July 15th, single ♀. Over Chemo Stream.

Tribe III.—LIBELLULINA.

Subfamily 5.—CORDULINA.

27. *Cordulia libera* Selys.—August. Single ♂; over small lake, Greenfield.

28. *Cordulia Uhleri* Selys.—Orono, College Collection.

29. *Cordulia cynosura* Say.—Orono, College Collection.

Subfamily 6.—LIBELLULINA.

30. *Plathemis trimaculata* De Geer.—Common over small brooks and ponds; August and September.

31. *Libellula 4-maculata* Linn.—Common over brooks; August and September.

32. *Libellula exusta* Say.—July 15th. Common over Chemo Stream.

33. *Libellula pulchella* Drury.—Orono, College Collection.

34. *Leucorhinia proxima* (Hagen MS.) Calvert.—Orono, College Collection.

35. *Leucorhinia intacta* Hag.—July 15th, Chemo Stream. Many pairs mating. The labium of all our specimens black, with the external part of the lobes a little white. The labrum cream colored.

36. *Diplax rubicundula* Say.—Orono. Very common. Sometimes fifty in sight at one time over small bogs and creeks in meadows. The males were repeatedly seen supporting the females while they were depositing eggs. The female clasped the male about the middle of the abdomen with her feet, the end of her abdomen hanging over behind. The two flew over the water, occasionally lowering quickly until the end of the female abdomen touched the water when the eggs were probably deposited. We noticed this species feed upon the young of *Diplax vicina* Hag. This is the most common species here from July to October; quite abundant over grain fields in dry places. One ♀ laid 67 spherical white eggs .02 inches diam. after being caught; eggs laid rapidly and were dry.

37. *Diplax vicina* Hag.—Orono; quite common about low meadows and small creeks. September.

38. *Diplax semicincta* Say.—Orono; common over meadows and grain fields with *D. rubicundula* July to October.

REMARKS.

The specimens in the college collection are all marked "Orono," but are without date of collection, habitat, or collector. We presume they were collected by Prof. C. H. Fernald, formerly of the Maine State College. The authority for the determinations is not known, but the writer has compared the specimens with the descriptions, and in most instances, is satisfied that they are correctly named. The specimens of *Æschna clepsydra* and *eremita* in the college collection have defective abdominal appendages. As it is upon the structure of these that the above species are separated, the writer is unable to tell whether the specimens are correctly named. From the general characters it is certain that the specimens belong to one or both of the above species, and, as they are separated in the collection, both may be included in the list provisionally, awaiting the taking of fresh material. We are under great obligations to Miss Mattie Wadsworth, Manchester, Me., for the loan of specimens for comparison, and to Mr. P. P. Calvert, Philadelphia, Pa., for identifying some of the troublesome species. The list does not represent all the Odonata found here, as several species were seen that were not taken, and no great pains have been taken to collect exhaustively.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

Prof. P. R. UHLER has lately been elected Provost of the Peabody Academy of Sciences, Baltimore.

STRANGERS TO THIS VICINITY.—On September 8th, at the electric light, I captured a fine, fresh *Phlegethontius cingulata*, and on the morning of October 4th found a beautiful *Philampelus vitis* on my veranda, apparently just emerged.—JAS. S. JOHNSON.

DURING the past month I have been watching the electric lights in the streets closely for *Euglyphia haroglyphisa*, and I discovered that our chickens are quite abreast of the times for smartness. One of our boys lived near a light on the outskirts of the city that I knew in former years to be a particularly good one, and I carefully instructed him to be up just about daybreak every morning to get ahead of the chickens living in the neighborhood. I may state here that the species does not seem to fly much before 12 P.M. He met with very little success, and I determined to investigate. I went Saturday night and watched, and the secret was out; there was about a dozen chickens—they stay on the edge of the sidewalk all night—they seem to sleep a little while, wake up, walk out to the light, fill up with the insects that have fallen, go back, sleep an hour longer, then go out and repeat it, keeping it up all night, in fact never go to roost at all. How is that for industry?—J. T. MASON.

I WAS interested in what Mr. E. P. Van Duzee says in the February number of the ENTOMOLOGICAL NEWS about "Another Immigration Theory." I have in my collection an example of *Erebus odora* which was caught by Wm. H. Rice at 60 Park Ave., Chicago, Ill., in 1887; 60 Park Ave. is in the centre of the residence portion of the west side. He noticed it fly under his front porch, and, procuring a strawberry-box, captured it and brought it to me alive. After submitting it to a short stay in the cyanide bottle I spread it and found I had a prize. It is 6¾ in. spread, with antennæ 1½ in. long, perfect to the very tip. The moth is very perfect, much more so than any specimen I have seen. It was evidently lately hatched, and could not have come any great distance after emerging from its chrysalis.—W. E. LONGLEY.

A WELL-GROWN larva of *Ecpantheria scribonia* was mailed to me from Charleston, S. C., Oct. 15, 1890, arriving two days later. Fed for two

weeks on cabbage and then refused food, retiring to the top of the cage, where it remained immovable till Jan. 1, 1891, when it spun a thin cocoon. Exactly three weeks later, on January 21st, the imago appeared, a beautiful female, measuring four inches. This larva should have hibernated, but perhaps the heat of my room hastened the transformation. Those who wish this beautiful insect should obtain the larva from friends in the South, where it is not uncommon, as it is easy to rear, taking kindly to cabbage, which is readily procured and kept fresh. I, myself, would like a lot of the larva this Spring, and will give good exchange or pay cash for same.—R. Ottolengui, 115 Madison Ave., N. Y.

The recent notes in Ent. News concerning insects attracted to electric light call to mind an observation of my own while in Washington, D. C., the past Summer. While looking over the swarms of insects covering the ground under certain lights, I noticed among them a number of Carabidæ of various species eagerly feasting upon the bodies of the fallen insects. Whether they were first attracted to the light and then turned their attention to their easy prey, or whether the abundance of food was itself the attraction, it would be interesting to determine. In either case it appears that these voracious creatures have readily adapted themselves to the improved conditions of modern society, and are glad to utilize electric lighting to their own advantage. Doubtless the same point has often been observed by other collectors, but I do not recollect of its mention in any of the journals I have read.—Herbert Osborn.

A Spider Fisherman.—On the 10th of last May Messrs. Leng, Beutenmüller, Thompson and myself were rambling among the innumerable little hills near Grasmere Station, on Staten Island, and in the late afternoon came to a small, wood-shaded pond. Several moderately large spiders were on its surface, a few feet from the shore, and it so happened that while I was watching one of them, in particular, that rested quietly, it suddenly made a rapid motion and seized a little silvery fish over an inch in length. It held it firmly and remained as stationary as it had been before the capture. A number of water-beetles (Gyrinidæ) now came swimming about the spider, no doubt being anxious to share in the feast, but they quickly decamped upon the approach of the water-net that captured the Arachnid. In the fifth volume of the Boston Journal of Natural History, *Dolomedes sexpunctatus* is described by Hentz, and the characters given there agree admirably with the specimen in question. The account further adds that, "This species dwells on ponds, and dives with great agility, hiding itself under floating leaves or rubbish when pursued." These spiders swim, or skate on the surface of the water, by using the two middle pairs of legs as oars, while the fore and hind pairs serve as supports.—William T. Davis.

Identification of Insects (Imagos) for Subscribers.

☞ Owing to the space taken up by this department the names will not be published in the future, but sent by mail direct to those sending the specimens for identification.

WM. LOWENSTEIN.—1, *Pterostichus Sayi;* 2, *Chariessa pilosa;* 3, *Ellychnia corrusca;* 4, *Batyle suturalis;* 5, *Podabrus brunnicollis;* 6, *Podabrus tomentosus;* 7, *Telephorus lineola;* 8, *Telephorus pusillus;* 9, *Ischyrus 4-punctatus;* 10, *Stenosphenus notatus;* 11, *Elaphidion parallelum;* 12, *Dorcashema alternatum.*

W. M. HILL.—1, *Aphodius inquinatus;* 2, *Bradycellus rupestris;* 3, *Agonoderus pallipes;* 4, *Tenebrionellus tenebrioides;* 5, *Chrysomela similis;* 6, *Stenolophus conjunctus;* 7, *Melanolestes picipes;* 8, *Gastroidea polygoni;* 9, *Gastroidea cyanea;* 10, *Chlænius tricolor;* 11, *Brachyacantha ursina;* 12, *Agonoderus pallipes.*

D. B. YOUNG.—1, *Silvanus imbellus;* 3, *Corticaria grossa;* 4, *Ceruchus piceus;* 6, *Ephistemus apicalis;* 7, *Tenebrionellus tenebrioides.*

F. H. HILLMAN.—13, *Plagiodera prasinella;* 14, *Anthrenus scrophulariæ;* 15, *Pristocelis quadricollis;* 16, *Phyllotreta albionica;* 17, *Blapstinus pulverulentus;* 18, *Cicindela repanda;* 19, *Cicindela oregona;* 20, *Systena tæniata;* 21, *Agonoderus lineola;* 22, *Collops bipunctatus;* 23, *Hydrophilus triangularis;* 24, *Rhantus flavogriseus.*

W. C. WOOD.—13, *Amara chalcea;* 14, *Amara angustata;* 15, *Anisodactylus agilis;* 16, *Amara* sp.; 17, *Amara avida;* 18, *Bembidium contractum;* 19, *Bembidium affine;* 20, *Philonthus cyanipennis.*

RALPH HOPPING.—13, *Haltica ignita;* 14, *Cercyon hæmorrhoidale;* 16, *Podabrus rugulosus;* 17, *Photinus consanguineus;* 18, *Podabrus brunnicollis;* 19, *Berosus peregrinus;* 21, *Staphylinus* (damaged); 22, *Melanotus decumanus;* 24, *Platydema excavatum.*

Entomological Literature.

TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, vol. xvii, 1890.—New species of American Cynipidæ, by H. F. Bassett. Notes on some North American Odonata, with descriptions of three new species, by P. P. Calvert. Notes on the species of *Dendroctonus* of Boreal America, by Dr. W. G. Dietz. A Synopsis of the Odonat genus *Leucorhinia* Britt., by Dr. H. A. Hagen. The species of *Heterocerus* of Boreal America; Notes on the species of *Ochthebius* of Boreal America; Notes on some Hydrobiini of Boreal America; A Revision of the Sphæridiini inhabiting Boreal America; Some notes on *Arœoschizus;* all by G. H. Horn, M.D. The Phycitidæ of North America, by Geo. D. Hulst. New North American Bees of the genera *Halictus* and *Prosopis*, by Charles Robertson. Descriptions of some new species of *Agrotis* Auct.; A contribution toward a knowledge of the Mouth-parts of the Diptera, by John B. Smith.

THE ENTOMOLOGIST, March, 1891.—Note on *Agrotis subgothica*, by J. Jenner Weir. Life-history of *Pachnobia leucographa*, by J. Arkle. Contributions to the Chemistry of Insect Colors, by F. H. Perry Coste. On the occasional abundance of certain species of Lepidoptera, by Robert Adkin. Lepidoptera found in Britain and America (List of), by Richard South. A Preliminary List of the Insect Fauna of Middlesex, by T. D. A. Cockerell. Entomological notes, captures, etc. Doings of Societies and Reviews.

BIOLOGIA CENTRALI-AMERICANA Part 90, December, 1890.—Arachnida-Araneidæ, by O. P. Cambridge (pp. 65–72). Coleoptera: vol. iv, pt. 2, by G. C. Chapman (pp. 249–266); vol. iv, pt. 2, by G. C. Champion (pp. 57–80, pl. 3; vol. vi, pt. 1, suppl. by M. Jacoby (pp. 225–232, pl. 40. Hymenoptera: vol. ii, by P. Cameron (pp. 121–128). Lepidoptera-Rhopalocera: vol. ii, by F. D. Godman and O. Salvin. Lepidoptera-Heterocera, by H. Druce (pp. 425–440, pl. 34).

ENTOMOLOGISCHE NACHRICHTEN, xvii, No. 1, January, 1891.—A new West African Fulgorid,* by Dr. F. Karsch, fig. A new Stratiomyid,* by C. Verhoeff. The genera *Lasiopsis*, *Asceptonycha* and *Lachnota* in the light of the dogma of priority, by L. Brenske. On the difference of colors in pupæ of *P. Machaon*, by E. Reuter. Ichneumonid studies,* by Dr. Kriechbaumer. New Sphingidæ from Africa,* by Dr. F. Karsch; *Rhadinopasa* n. gen. (a plate to follow). No. 2, January, 1891.—A contribution to the Coleopterous Fauna of the island of Norderney* and *Capsus capillaris* F., an enemy to Aphidæ, by C. Verhoeff. On the Odonat genus *Idionyx* Selys,* by Dr. F. Karsch.

ENTOMOLOGISK TIDSKRIFT, Arg. 11, Nos. 1, 2. [In Swedish] Stockholm, 1890. Scandinavian Trichoptera æquipalpina, by H. D. J. Wallengren. On Cicadariæ, morphological and systematic, by Dr. H. J. Hansen, two plates. Contributions to the knowledge of the geographical extension of the Swedish Macrolepidoptera, by J. Andersson. On Scandinavian species of Trichocera, by S. Lampa, etc.—No. 3, Entomological communications from Societas Pro Fauna et Flora Fennica, 1884–1889, by E. Reutter. The Lepidopterous Fauna of St. Hans Haugen, by J. S. Schneider —No. 4, Scandinavian Microlepidoptera (continued), by H. D. J. Wallengren. Contributions to the Norwegian Lepidopterous Fauna, by W. M. Schoyen. A new Dipter,* by O. Bidenkap. Abberrations in Lepidoptera, by E. Reuter. New Beetles from Africa,* by C. Aurivillius, etc.—No. 5, Bibliography of Scandinavian Insects, by J. Spangberg.

COMPTE-RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, Jan. 10, '91. Description of Coleopiera from the interior of China,* by L. Fairmaire; *Toxocerus*, *Arrephora*, *Hexatœnius*, *Colpotinus*, *Hexarhopalus*, n. gen. *Phytophaga* from Chota Nagpore,* by A. Duvivier; *Pseudadimonia* n. gen. Causeries Odonatologiques, No. 3., *Nesobasis* new subgenus of Agrionina by E. de Selys-Longchamps.

* Contains new species other than North American.

Biologisches Centralblatt (Erlangen), xi, No. 1, Feb. 1, 1891.—Parthenogenesis in Ants by artificial temperature. The meaning of the antennæ in *Myrmedonia*. On the question of the hearing power of Ants; all by E. Wasman.

Compte-Rendu. L'Academie des Sciences (Paris), Feb. 2, 1891.—Locusts (*Acridium peregrinum* Oliv.) in the extreme south of Algeria and the locust-eating population, by J. Kunckel d'Herculais; refers to the devastations beginning in December, 1890.

Doings of Societies.

Entomological Section of the Academy of Natural Sciences.—A meeting was held Feb. 26, 1891, Dr. Horn, director, presiding. Meeting called to order at 8.15 P.M. Members present: Martindale, Ridings and Skinner. Associates: Liebeck, Fox, Calvert. Dr. Horn exhibited drawings to illustrate *Cryptohypnus*, and also some new species intended for the Transactions. The head in *Epicauta* was shown, and also a drawing of an Elaterid supposed to be a *Cryptohypnus*. The species was sent to Dr. Candéze, inquiring as to what he thought its proper position. He was disposed to put it near *Colymbetes*. Dr. Horn considered it near *Cryptohypnus*. The characters of the species were discussed and their relations to allied genera dwelt on. An *Eleodes* was shown with curious modifications of the hind tibiæ. Mr. Philip Nell was proposed as an associate of the Section.

Henry Skinner.
Recorder.

OBITUARY.

Edward Andre, F. E. S.—The French publications announce the death of this well-known Hymenopterist. His principal work was "Species des Hymenopteres d'Europe et d'Algeria," commenced in 1879 and continued until his death.

The death has been announced of Prof. Philipe Poey, the eminent Cuban naturalist and director of the Zoological Museum in Havana. He has done much good work in entomology.

Dr. S. S. Rathvon, of Lancaster, Pa., on March 19th, aged 79 years. He was a corresponding member of the Academy of Natural Sciences and American Entomological Society; also one of the founders of the Linnaean Society of Lancaster.

Errata to Vol. II, No. 3.

Page 42, line 14 from top, for incurvation of inner eye, *read* inner eye margin.
Page 49, line 5 from bottom, for acpitis, *read* capitis.
Page 53, for urtioæ, *read* urticæ.
Page 54, line 18 from top, for cervical, *read* conical.

Entomological News for March was mailed February 28, 1891.

KALLIMA PARALEKTA (DEAD-LEAF BUTTERFLY.)

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. II. MAY, 1891. No. 5.

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Description of Plate V.

Plate V represents the so called protective mimicry of insects. The last few years much ink has been spilled in the discussion of this subject; some writers agreeing that it is undoubtedly protective mimicry and others only accidental resemblance. Drummond, in his work on "Tropical Africa," speaks as follows: "Carlyle, in his blackest visions of 'shams and humbugs' among human kind, never saw anything so finished in hypocrisy as the naturalist now finds in every tropical forest. There are to be seen creatures—not singly, but in tens of thousands—whose very appearance, down to the minutest spot and wrinkle, is an affront to truth; whose every attitude is a pose for a purpose, and whose whole life is a sustained lie. Before these masterpieces of deception the most ingenious human impositions are vulgar and transparent. Fraud is not only the great rule of life in a tropical forest, but the one condition of it."

We are indebted for the plate to the kindness of M. J. F. Sachse, editor of the "American Journal of Photography," who made the original photograph.

This species is mentioned by Wallace in his work on the Malay Archipelago in the following language: "Its upper surface is of a rich purple, variously tinged with ash color, and across the fore wings there is a broad bar of deep orange, so that when on the wing it is very conspicuous. This species was not uncommon in dry woods and thickets, and I often endeavored to capture it without success, for, after flying a short distance, it would enter a bush among dry or dead leaves and however carefully I crept up to the spot I could never discover it till it would suddenly start out again and then disappear in a similar place. At length I was fortunate enough to see the exact spot where the butterfly settled, and though I lost sight of it for some time, I at length discovered that it was close before my eyes, but that in its position of repose it so closely resembled a dead leaf attached to a twig as almost certainly to deceive the eye, even when gazing full upon it." I have noticed the following interesting quotation: "J. A. de Mandelsloe, who made a voyage to the East Indies in 1639, tells us that not far from the Fort of Ternate grows a certain shrub called by the Indians *Catopa*, from which falls a leaf, which, by degrees, is supposed to be metamorphosed into a butterfly." This was one hundred and ninety years before the butterfly was described by Horsfield.—Ed.

———o———

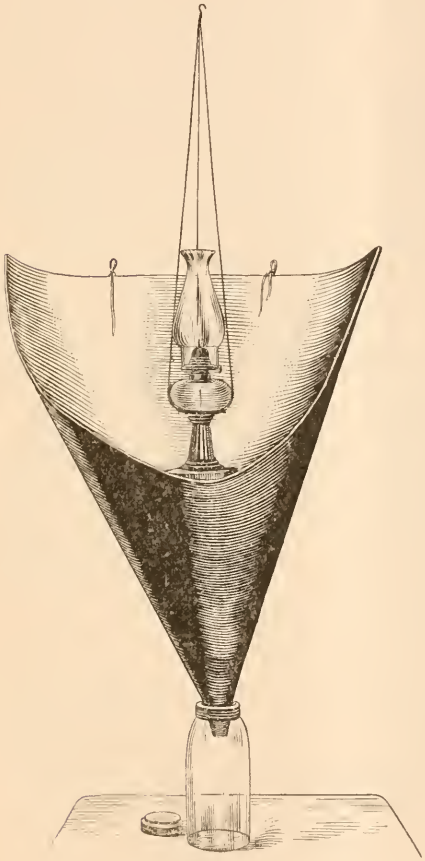
A TRAP FOR CAPTURING COLEOPTERA.

By T. B. Ashton, Tonganoxie, Kansas.

A good method of capturing many valuable species of insects, for the purpose of enriching the cabinet of entomologists, is to make from builders' past-board a funnel two feet in diameter and three feet high, with the apex one and a half inches in diameter. Eighteen inches from the top of the funnel and one-third of its circumference in front should be cut out, leaving an opening. A wire should be fastened around all the rim to keep the funnel in proper shape. Two loops should be made in the wire six inches each side of the centre of the top of the funnel to fasten it in position when in use. The seam in front of the funnel can be lapped and held together with glue. A coat of glue, or varnish, should be spread over the inside of the funnel so as to render it more slippery to the feet of insects. The funnel may be of any

diameter and made of tin, or any other suitable material, but paste-board answers the purpose, and is not expensive.

Procure a two-quart glass fruit-jar with an air-tight top and fasten in it at the bottom two ounces of Potassium cyanide, and place plenty of paper packing over it. Add a few drops of water to the packing to moisten the cyanide and then close the jar till wanted for use. With proper care the cyanide will retain its strength, and can be used during the collecting season.



The next part of the trap is a lamp that gives a bright light. A wire ring should clasp the lamp below the oil bowl. This ring should have three small wires fastened to it, equal distances apart, and extending upwards two feet and twisted together down to near the chimney and have a loop on the upper end to hang the lamp by when in use.

On a dark, still evening in the spring-time, when insects are on the wing, fasten the funnel to the side of a building, or some other suitable object, with its small end resting snugly in the mouth of the cyanide jar, and then suspend the lighted lamp in the funnel to shine forth from the front opening and let it remain there for a few hours, then close the jar till morning, and by the light of day open and spread its motionless and silent contents on some white paper, then the entomologist will enjoy a treat such as is

seldom seen,—his eyes beholding beauties in many forms and so gaily colored, and then in such numbers, that his mind will be filled with wonder and delight. There will be many Lepidoptera and a few Neuroptera that will have all their beauty spoiled by friction with each other as they mix together in the fumes of the cyanide. A few Hymenoptera, Hemiptera and Orthoptera will be found in fair condition to claim attention. There will be Coleoptera represented by species in many families; some are large, others small, and many that are very minute, but all, with a little brushing, fit for a place and a name in a naturalist's cabinet.

For capturing Coleoptera that are attracted by light, I consider this the best trap that I have ever seen, and, while I claim to be the inventor of it, I do not intend to get it patented, and I invite all coleopterists to make use of it and do me the kindness to report their success or failure to the ENTOMOLOGICAL NEWS.

———o———

Notes on some Spiders described by Hentz.

By NATHAN BANKS, Washington, D. C.

Since Hentz published his papers on the spiders of the United States quite a number of his species have remained in obscurity. During the past season I have found a few not hitherto recorded, and decided that certain known species were synonymous with some of those described by Hentz. The following notes are on the above two classes of facts.

MICROGNATHIDÆ.

Thalamia parietalis Hentz.

Two specimens of this peculiar and interesting spider were found in the corners of a room in Texas. The genus is close to *Œcobias*, but I can find only two tarsal claws. It may be related to *Omanus*.

DRASSIDÆ.

Trachelas tranquilla Hentz.

Clubiona tranquilla Hentz ; *Trachelas ruber* Keys.

This spider is common through all the United States east of the Mississippi River, and I have specimens from Texas and Missouri [S. Van Ingen]. I think that there can be no doubt that this spider, several times described under the name of *T. ruber* Keys. is the *Clubiona tranquilla* Hentz.

AGALENIDÆ.

Dictyna sublata Hentz.

Theridion sublatum Hentz; *Dictyna muraria* Em.

I see no reason why this synonymy is not perfectly clear. The species is found in Mississippi, and specimens vary to resemble Hentz's figure. *D. arundinaceoides* Keys. is perhaps the same species. As to Hentz's other *Dictyna* I am not sure what they are; *T. foliaceum* is perhaps *D. frondeum* Em.

THERIDIDÆ.

Linyphia conferta Hentz.

Ithaca and Long Island.

Bathyphantes anglicanum Hentz.

Theridion anglicanum Hentz.

Two females and two males of this species were taken in Texas. The male is red like the female.

EPEIRIDÆ.

Epeira directa Hentz.

Brazos County, Texas. They vary somewhat in markings, a central light stripe is frequently present on the abdomen and often each side of this a row of six black dots. On the venter there are two dark stripes which unite at the spinnerets and at the lung slits. It shows some approach to *Tetragnatha*.

Epeira sanguinalis Hentz.

This very delicate spider was found in the nest of a mud-wasp in Texas in September. The front legs are very spiny. The venter is white, except the black epigynum.

Epeira scutulata Hentz.

E. punctillata Keys.

One specimen (♂) of this species has been recorded from Illinois by Keyserling under the name of *Epeira punctillata*. I have found an adult ♀ in July on Long Island, N. Y. It was at the center of a vertical orb web in an evergreen tree. Young specimens were found in evergreen trees in December.

THOMISIDÆ.

Runcinia aleatorius Hentz.

Thomisus alealorius Hentz; *Runcinia brendelli* Keys.

Hentz described the ♂ of this species, and it seems that some

arachnologists knew of the identity of the two species, yet the synonymy has not previously been given. Mississippi, Texas, Iowa.

LYCOSIDÆ.

Lycosa erratica Hentz.

Tarentula lepida Keys.

This species is quite easily recognized by the form of the central dark stripe on the abdomen.

Aulonia? funerea Hentz.

Lycosa funerea Hentz.

Washington, D. C. Not uncommon. The abdominal markings do not quite agree with Hentz's figure, yet the specimens vary somewhat. Its position in *Aulonia* is very doubtful. It may form a new genus. The cephalothorax is full as high between the second and third pairs of legs as in the eye region.

Dolomedes urinator Hentz.

D. lanceolatus Hentz is the ♂ of this species.

Dolomedes scriptus Hentz.

D. scapularis Koch.?

What has been taken as *D. tenebrosus* Hentz is this species. What I feel sure is *D. scriptus* H. has the epigynum as figured by Emerton for *D. tenebrosus* and very similar to that of *D. scapularis* as figured by Keyserling. *D. tenebrosus* H. has a much broader epigynum and a broad septum, which does not, however, cover the cavity. It is also quite different in markings.

Oxyopes salticus Hentz.

O. astutus Hentz is the ♂ of this species.

ATTIDÆ.

Dendryphantes retarius Hentz.

Attus retarius Hentz ♀; *Plexippus puerperus* Peck, not Hentz.

From D. C. southward to Texas. Peckham has wrongly determined this species. I see no reason why it is not a good *Dendryphantes*. *Attus sylvanus* Hentz is probably the ♂, as Peckham states, yet it may be another species.

Dendryphantes nubilus Hentz.

Attus nubilus Hentz.

This is perfectly distinct from *D. capitatus*. It is very variable in markings, some almost white; a small darker specimen may be distinct. Mississippi and Texas.

Dendryphantes octavus Hentz.
Attus octavus Hentz.

Dendryphantes capitatus (Hentz) Peck, not Hentz.
Attus parvus (Hentz) Peck, not Hentz; *Attus æstivalis* Peck.

The common spider described and figured by Hentz as *Attus octavus* is certainly not an *Eris*, and I have no doubt but that it is what has been described by Peckham as *Attus capitatus*, of which he makes *Attus parvus* the female. The latter is either an *Eris* or *Zygoballus*, probably the latter, and may even be *Z. bettinii* Peck. I see no reason for considering *Attus capitatus* Hentz as the male of what Peckham describes as such, the markings of the cephalothorax are certainly different, and the difference in size is enormous. Moreover, Hentz did not give *Attus parvus* as common, while he does state so of *Attus octavus*. Nearly all the specimens of this species which I have seen from the South appear as Hentz figures *Attus octavus*.

NOTES ON THE EARLIER STAGES OF LEPISESIA FLAVOFASCIATA Barnst.

By Carl Braun, Bangor, Me.

On Memorial Day 1888, at 4 P.M., when returning from a bog five miles distant from this city, where I had spent the day collecting *Chionobas jutta* and other rare lepidoptera, by the edge of a clump of woods near home, my attention was called to a bumble-bee-like creature which was fluttering among the violets just in blossom in order to obtain some honey as I thought. Its flight seemed to me peculiar, and by observing it closer I saw at once that it was not a large bee, but a small *Macroglossa*. Having my net at hand I caught it at once, and found, after bottling it, that it was a *L. flavofasciata*, which species I had often before admired in the collection of Prof. C. H. Fernald, then at the State College in Orono, Me. After the Insect had become quieted I took it from the bottle immediately and examining it closer found that it was a ♀. In the hope of obtaining ova from this exceedingly rare and desirable species, I quickly put it into a small paper-box with perforated bottom and glass top. These boxes I always carry with me on my collecting trips to keep females from which I desire to obtain ova. I carried the box care-

fully in my hand, and after a few minutes, to my great delight, it came to life again. When arriving at my home I put it into a larger paper box with gauze top fitted up for the purpose for females to lay their ova in. I at once procured a few fresh leaves of wild honeysuckle which, I believed at the time, to be the food-plant of this species, and coated several of them thinly with maple honey. I have always obtained from females of Sphingidæ in this manner more ova than without the food-plant. I change the leaves twice a day and keep the boxes in my breeding-house in a cool place. I have often watched *Sphinx kalmiæ* and *drupiferarum* when in a starving condition putting the proboscis out and sucking the honey from these coated leaves. This of course sustains life and helps them to lay all the eggs. On the other hand if not fed, fresh females of the flower-visiting Sphinges will in most every case, die of starvation before they have laid half their eggs. By examining the ovary after death I have generally found this to be the case. This by way of explanation. But to return to my ♀ *Lep. flavofasciata*, I watched it closely for two days, examining the box most every hour, without finding any ova. I had almost given up hope of obtaining any; yet, to my great delight on Saturday morning, June 2d, I found four small grass-green globular eggs, two of which were attached to the bottom of the box and two glued to the stem of a leaf. I changed the leaves, putting the eggs carefully back into the box. That afternoon I found ten more eggs and next day twenty-two more. June 4th I counted fifty-seven ova. On the morning of June 5th I found the ♀ dead and no more eggs. I believed she had laid them all, and of course must have deposited ova before I had captured her; this latter proved to be a fact. The young larvæ hatched after five to six days; they would not eat the honeysuckle and I greatly feared losing them. In my anxiety I went to the place where I had taken the ♀ and found among other plants a species of *Epilobium*, and by cleansing the leaves I found to my great astonishment attached to the underside of one leaf two eggs of this same species. The female was evidently depositing eggs at the time I caught her; I had found the food-plant without doubt, as the starving larvæ readily took to it and seemingly devoured with great appetite their well-known food. I am also quite sure I would have lost the young larvæ but for the honey on the leaves of the honeysuckle, which kept them

alive. Here and there they had nipped a leaf on the edges and the light honey coating had disappeared. Of all the fifty-seven larvæ I only succeeded in bringing out nine to the pupal state, and the next season only five, three females and two males to the imago state, large full grown imagos, of which two pairs are in my collection. The imago of this insect has been described by Barnst, but the earlier stages according to Prof. Smith's book on the Sphingidæ are still unknown,

I have not much time for this work, and I had almost my mind made up to turn over my numerous notes on original work to somebody better fitted to the task, yet I will try to do the best I can if the editor of ENTOMOLOGICAL NEWS will allow me the space. The eggs, the four larval stages and the pupæ I will describe next month. I have given this introduction, as, I believe, it will be of interest to many of the readers. Next I shall attempt to describe the earlier stages of *Platarctia parthenos* and *Smerinthus cerisyi*, of which species I raise some every year. I have the eggs, the larvæ in all the stages in alcohol, and inflated, of these species.

———o———

ELEMENTARY ENTOMOLOGY.

LEPIDOPTERA.

Butterflies and moths, or LEPIDOPTERA (from the Greek, *lepis* a scale, and *pteron* wing), comprises those insects characterized by cylindrical, compact bodies, small head, mouth parts (in most species) developed for sucking, maxillæ prolonged into a tongue, mandibles obsolete, wings covered with minute scales, transformations complete. The word butterfly comes from the Anglo-saxon buttor-fleoge, or the resemblance of some common species (*Colias*) to butter in color. In German they are called schmetterlinge, from *schmetten*, cream. *Molken-dieb* (the whey-thief) is another name. The association with milk in its three forms—butter, cream and whey, is remarkable.

The order LEPIDOPTERA is separated into two grand divisions: RHOPALOCERA (from two Greek words, meaning knob and horn), butterflies or diurnals, and HETEROCERA (variable and horn), moths or nocturnals. The butterflies are thus separated from the moths by the structure of the antennæ or feelers. In the former

being thread-like, with a little swelling or knob on the end, and in the moths a great variety of shapes other than this. In the Heterocera, or moths, they are filiform (thread-like), setiform (like a bristle), fusiform (tapering at each end), serrate (saw-like), pectinate (comb-like), filiciform (fern-like) and plumose (feather-like). There was formerly used another division of the moths called Crepuscular (from *creper* dark, dusky), or those that fly at dusk and in the early morning. The butterflies are further distinguished from the moths by their relatively smaller bodies in comparison to expanse of wings, less hairy character of thorax and abdomen, and when in repose they carry the wings erect ; the chrysalids are naked and not buried in the earth, and the spiral tongue or haustellum, is long and well developed. Rhopalocera (butterflies, diurnals) are found all over the world from the frozen shores of the Arctic Ocean to the hot plains of Equatoria. They are always more abundant in the vicinity of water, and are always a welcome sight to the thirsty traveller.

Linnaeus included all butterflies in the genus *Papilio*. He was acquainted with about 760 species of moths and butterflies; they are now divided into well-defined families and numerous genera and species.

The food of butterflies consists principally of the sweet liquids drawn from flowers, which they reach by means of their long tongues.

The name butterfly suggests balmy Summer days, bright sunshine and green foliage. "On the side of a mountain as the sun was setting, throwing different portions into the shadow from the base to the top, the writer has seen the butterflies fly from cluster to cluster of flowers up the acclivity, going just fast enough to keep in the sunshine."* While this is true of butterflies as a whole, there are numerous exceptions. Some of the Satyridæ only fly in the densest woods, and others only at dawn and dusk of evening. "In Continental India, at Sangor, Capt. de la Chaumette describes *Melanitis leda* and an allied species as flying at sunset under the Neem trees, resting for a long time motionless on the ground and will not move until you almost tread upon them."

The species belonging to the MORPHINA have similar habits. Some of the Indian species remain motionless in repose all day,

* Prof. G. H. French, in "Butterflies of Eastern United States."

but when the sun is about to set they are to be seen everywhere, and are sometimes mistaken for bats. Every species has its own peculiar habits as to flight, time of appearance, method of egg deposition, etc. Some kinds wander from place to place and flower to flower, and others live their whole life in a very limited area. Butterflies often migrate in such numbers as to even obscure the sun. These congregations are usually made up of a single species. "A migration of butterflies was observed in Switzerland on the 10th of June, 1828: Madame de Meuron Wolff and her family established during the Summer in the district of Grandson, Canton de Vaud, perceived with surprise an immense flight of butterflies traversing the garden with great rapidity. They were all the species called Belle Dame by the French, and by the English, Painted Lady (*Vanessa cardui*). They were all flying close together in the same direction, from South to North, and were so little afraid when one approached that they turned not to the right or left. The flight continued for two hours without interruption, and the column was about ten or fifteen feet broad."

Mr. Charles J. Anderson encountered in Southwestern Africa, for two consecutive days, such immense myriads of lemon-colored butterflies, that the sound caused by their wings was such as to resemble "the distant murmuring of waves on the sea-shore." They always passed in the same direction as the wind blew, and, as numbers were constantly alighting on the flowers, their appearance at such times was not unlike "the falling of leaves before a gentle autumnal breeze." Moufet says: "Wert thou as strong as Milo or Hercules, and wert fenced or guarded about with an host of giants for force and valor, remember that such an army was put to the worst by an army of butterflies flying in troops in the air in the year 1104, and they hid the light of the sun like a cloud."—Ed.

(To be continued.)

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of Entomological News solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

It seems foolish for a man to enter into an argument with a wasp. A wasp always carries his point.—*Yonkers Statesman.*

We have received a photograph of the rare moth *Erebus zenobia* caught in a woods near Tiffin, Ohio, October 20, 1890, at 10 P.M. It was taken at sugar by Mr. Lewis Ullrich. Mr. Ullrich says in regard to his capture: "I collected in this woods about three nights every week after July 10, 1890, in the same place where this was caught, but did not see this species until the night mentioned above."—Ed.

I have received through the kindness of Mr. J. T. Mason, of Houston, Tex., a moth probably not before recorded as belonging to our fauna. We are indebted to the industry of Mr. Mason for being able to add such a fine species to our lists. The only reference I can find to the species is in Vol. I. of Hübner's "Exotische Schmetterlinge," where it is beautifully figured under the name of *Diphthera festiva elegans*. Both the upper and undersides and both sexes are given. This is probably the moth Mr. Mason refers to in his note in Ent. News, Vol. II., p. 76, under the name of *Euglyphia haroglyphisa*.—Ed.

Fashion's new Fad.—Not content with her slaughter of the innocents in the matter of birds, Dame Fashion has extended her murderous designs to moths and butterflies. The gorgeous hues of the wings of some of these are deemed effective for dress decorations, and we are told that in Paris exquisite gauze ball toilets are "appropriately and fancifully strewn with natural butterflies." Fanciful, it is granted, but never appropriate. Butterflies appear also on fans, but here only the wings are used, with the body, antennæ and legs sketched in afterward by an artist. Beautiful effects are produced, it is said, by painting bunches of flowers on which the insects seem to hover. When it is reflected that a single gauze fan of the size now in vogue may hold a dozen or more butterflies or moths, it is easy to estimate in what enormous quantities these creatures must be taken to satisfy even a small demand. Truly a fashionable toilet is becoming a composite thing, with dead birds and butterflies, hair from Indian beggars, and Mexican bugs as jewelry, held by golden chains.

Ants as Surgeons.—Ants are terrible fighters. They have very powerful jaws, considering the size of their bodies, and, therefore, their method of fighting is by biting. They will bite one another, and hold on with a wonderful grip of the jaws, even after their legs have been bitten off by other ants. Sometimes six or eight ants will be clinging with a death grip to another, making a peculiar spectacle, some with a leg gone, and some with half the body gone. One singular fact is that the grip of an ant's jaw is retained even after the body has been bitten off and nothing but the head remains. This knowledge is possessed by a certain tribe of Indians in Brazil, who put the ants to a very peculiar use. When an Indian gets a gash cut in his hand, instead of having his hand sewed together, as physicians do in this country, he procures five or six large, black ants, and holding their heads near the gash, they bring their jaws together in biting the flesh, and thus pull the two sides of the gash together. Then the Indian pinches off the bodies of the ants and leaves

their heads clinging to the gash, which is held together until the gash is perfectly healed.

Mimicry of *Danais archippus* presented itself very strikingly early in September, 1889, while looking for *Catocala* in wood lot well cleared of undergrowth. It was in Astoria, Long Island, late in the afternoon when about to return home that I noticed many Danaidæ flying singly and in a restive way toward a circular clearing on edge of woods, and would invariably disappear in the foliage as I supposed it to be. I lingered there for half an hour and observed their coming in from meadows adjoining, and wondered why they were flying so high when they reached the timber line, and many passing out of sight at a particular spot of that circular clearing. I stationed myself closer and almost under overhanging branches of a Swamp Maple (*Acer rubrum*), on which I noticed an apparently dead or dying branch, having the red leaves of Autumn foliage thereon. It contrasted strangely with the verdure of other branches and trees of vicinity. I have seen such branches in August destroyed by the agency of Locusts (*Cicada septemdecim*) and much resembling that in question. Presently I observed a *Danaid* circling overhead for a few minutes, flying towards this branch and alighting on *underside* of one of its branchlets, then dropping and folding up its wings hurriedly. One more leaf had now been added, and the mimicry revealed to my senses. It was as perfect as it could be. Every *Danaid* hung or rested there limp and lifeless as it were, and not in the least disturbed by the jarring occasioned by subsequent arrivals of others. The lowest part of this dead limb, which it was, because devoid of any leaf, was twelve feet above ground, so that I could not reach it with my net. I calculated that from six to eight dozen *Danaids* were thereon. I tossed the net upward, shaking the limb when it came in contact with it, and the air seemed to be brilliant with fulvous tints of terrified butterflies. I subsequently revisited the spot twice during the following week, but failed to observe *Danaids* in same locality or tree.—Richard E. Kunze, M.D., New York.

Notes on Mt. Desert Dragonflies.—The following species of Odonata were taken during the Summer of 1890 on the island of Mt. Desert, Maine, and within a few miles of the village of Bar Harbor.

I am indebted to Mr. Philip P. Calvert, of Philadelphia, who has kindly identified the specimens for me. The notes on the colors of the eyes were made while the specimens were fresh and not yet faded.

Agrioninæ.

Argia violacea Hag.—July 1st, ♂.

Ischnura verticalis Say.—Orange variety. June 25th, 1 ♀; eyes brown above.

Enallagma Hageni Walsh.—July 1st, 1 ♂.

Æschninæ.

Neuræschna vinosa Say.—July 25th, 1 ♂; eyes greenish, becoming brown above.

CORDULINÆ.

Cordulia semiaquea Burm.—July, ♂ and ♀; eyes brown.

LIBELLULINÆ.

Libellula quadrimaculata L.—June 28th, 1 ♂; eyes brown above, greenish bloew.

Celithemis elisa Hag.—June 28th, July 10th; several males and females; eyes chocolate-brown above.

Nannothemis bella Uhler.—July 1st, four females; eyes above brown, below gray, with a brown stripe down the centre.—DAVID JAYNE BULLOCK, Philadelphia, Pa.

NOTES ON THE LARVA OF *Catocala habilis*.—Last summer while searching for *Agrotis* under the loose bark of the hickory I was surprised to find many larvæ of the above named species. They are not gregarious, as I afterwards learned, while feeding them in confinement, but are eminently nocturnal and only feed by night and would naturally seek the shade and protection of the loose bark during the day. Every strip of bark sheltered more or less of them. They were made up of two broods. The larger ones were nearly full grown, while the smaller ones had hardly got through the second moult. The larvæ of this species are so discommoded by light that they seek the darkest corners of the rearing cage during the day, and at night if a strong light is brought to bear upon the bush while they are feeding, they will immediately stop and will not go on with the repast until it is removed. I do not know whether the larvæ of this species has been written up or not. I believe little is known about a majority of the larvæ of this genus, but venture to say this one resembles the larva of *C. Ultronia* in form, but is somewhat smaller and dark iron-gray variegated with small white spots. The last pair of pro-legs are very much spread or technically speaking, divaricate. When about to transform to pupa they leave the bush and form a cocoon an inch or an inch and a half below the surface of the ground. In this respect they differ from others of the genus. The early brood came out winged flies the 15th of July and the others a month later.—R. BUNKER, Rochester, N. Y.

ON Saturday, April 5th, Mr. Wm. J. FOX, of the Academy of Natural Sciences of Philadelphia, and Mr. Charles W. Johnson, of the Wagner Institute of Philadelphia, sailed for Jamaica. They go solely for the purpose of studying and collecting the insect fauna of that island. They expect to be gone from six weeks to two months.—ED.

THE LARVÆ of *Telea polyphemus* generally are not found in any great number on one and the same food-plants. Late in August, or early in September, 1887, I took from three White Birches, none over fifteen feet high and growing so close together that branches interjoined, fifty-six of these larvæ, about half of full grown size. A number of other adult larvæ of same were collected from *Betula alba*, near by, on the bank of Harlem River, city of New York.—RICHARD E. KUNZE, M.D., New York.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Insects have been named for E. Wilkinson, C. W. Chamberlain, Daniel G. Cox, W. E. Longley, B. F. Goss.

Entomological Literature.

GARDEN AND FOREST, vol. iv, No. 158, p. 99.—An insect pest of Cattleyas (*Isosoma archidearum*). A fig. of the insect with larva and pupa.

THE ENTOMOLOGIST'S MONTHLY MAGAZINE, March, 1891.—A fortnight in Algeria, with descriptions of new Lepidoptera (concluded), by E. Meyrick. Holiday captures of Lepidoptera in Switzerland in 1886, by G. T. Baker. Notes on some British and Exotic Coccidæ (No. 19), by J. W. Douglas. On the new Australian Vine Pest, by Dr. E. Bergroth. On two new species of *Heteromera* from Japan, by George Lewis. *Cryptohypnus dermestoides* and its allies, by Geo. H. Horn, M.D. Description of the larva of *Hypena rostralis*, by S. T. Porritt. *Sphinx pinastri* as a British insect, Eds. *Plusia moneta* F. in France, Id. *Acidalia immorta*, by Rev. J. Greene. Coleoptera and Lepidoptera at Bundoran Island, by Rev. W. F. Johnson. *Hydroporus septentrionalis* and other Coleoptera in the Plymouth District, by James H. Keys. A query as to the food of certain Dipterous larvæ in nests of Vespidæ, by R. Newstead. Scarcity of Aculeate Hymenoptera in South Devon, by G. A. J. Rothney. Aculeate Hymenoptera in Wiltshire, 1890, by R. C. L. Perkins.—April, 1891. —Annotated List of the British Tachiniidæ (continued), by R. H. Meade. Notes on some British and Exotic Coccidæ (No. 20), by J. W. Douglas. *Micropteryx sangii*, a new species from birch, by J. H. Wood. On the erroneous inclusion of *Catoptria* (*Grapholitha*) *decolorana* Fr. in the British fauna, by C. G. Barrett. *Pempelia adelphella* id. Description of a new species of *Anaspis* from Scotland, with remarks, by G. C. Champion. On two new species of Mexican Histeridæ, by G. Lewis. Wiener Entomologischen Verein, Eds. A means of preserving collections in dry, hot countries, id. Newspaper entomology. Coleoptera at Church Stretton, by W. G. Blatch. *Odontæus mobilicornis* at Wellington College, by E. F. Elton. On the occasional development of wings in species of Hemiptera, usually Micropterous or Apterous, by J. W. Douglas. *Hepialus vetleda* in abundance in Somerset, by C. G. Barrett. *Hesperia lineola* in Somerset, id. A black variety of *Phigalia pilosaria* at Gainsborough, by Rev. Canon Fowler. Note concerning *Pseudomacromia elegans* and *pretiosa* Karsch., by R. McLachlan. *Anthophora pilipes* at

Ilfracombe, by E. Saunders. Note on some Irish Trichoptera, by J. J. F. X. King.

Lepidoptera Indica. By F. Moore.—We have seen the first five parts of this grand work, and the first thing noticed was that the names of the species figured were not on the plate, but were referred to the text by numbers. This impairs the value of the work very much, and is an endless nuisance to the working lepidopterist. This great fault also occurred in Rhopalocera Malayana. We can't understand why practical entomologists, who get out works, make this mistake. To see how this should be done we refer to the "Biologia Centrali-Americana" and the works of Staudinger, Romanoff, Saalmüller, etc. Thus far forty fine colored plates have been published illustrating the subfamily Euploeinæ, in which the author includes the old genera *Hestia*, *Danais*, *Euplœa*, divided into a great many new ones. This will be an exceedingly valuable work to those seeking an aid to identification.

Oregon Agricultural Experiment Station, Bulletin No. 10.—Experiments with the Codling Moth and with a combined Fungicide and Insecticide. The Hop Louse; Life-history, Prevention, Remedies, etc., by F. L. Washburn, entomologist.

Delaware College Agricultural Experiment Station, Bulletin No. 12.—Injurious insects and insecticides. The following insects are considered: Black Peach Aphis, Spring Canker Worm, Rose Chafer, Harlequin Cabbage Bug, Cut Worms, Angoumois Moth, Flea Beetles.

Proceedings of the Entomological Society of Washington, vol. ii, No. 1.—List of members. Nathan Banks: On *Thalamia parietalis* Hentz. Otto Heidemann: Note on the occurrence of a rare Capsid near Washington, D. C. L. O. Howard: The habits of *Eurytoma*, a new remarkable genus of Encyrtinæ; The habits of *Pachyneuron;* The parasites of the Hemerobiinæ. C. L. Marlatt: The *Xanthium trypeata*, *Trypeata æqualis* Lw.; Observations on the habits of *Vespa;* Notes on the genus *Metopius*, with description of a new species and table of species; The final moulting of Tenthredinid larvæ. Geo. Marx: A contribution to the knowledge of North American spiders; On the effect of poison of *Lathrodectus mactans* Walck. upon warm-blooded animals. C. V. Riley: Notes on the larva of *Platypsyllus;* On the difficulty of dealing with *Lachnosterna;* A viviparous cockroach; On the time of transformation in the genus *Lachnosterna*. E. A. Schwarz: Annual address of the president, North American publications on entomology; A list of the blind, or nearly eyeless Coleoptera hitherto found in North America; Labeling specimens; Note on the food-habits of *Xyleborus tachygraphus* and *X. dispar;* Coleoptera on the Black Locust; Notes on the breeding habits of some *Scolytids;* Contribution to the life-history of *Corthylus punctatissimus* and description of *C. spinifer* n. sp.; Feeding habit of a species of Empidæ. C. H. Townsend: Hemiptera collected in southern Michigan; The North American genera of Calyptrate Muscidæ; Note on

the genera *Triptotricha* Lw. and *Agnotomyia* Will.; Notes on the North American Tachinidæ sens. lat. with descriptions of new species. P. R. Uhler: Observations on some remarkable forms of Capsidæ.

The Tertiary Insects of North America by Samuel H. Scudder, being vol. xiii, Hayden U. S. Geological Survey of the Territories; 663 pages, 28 plates, with many figures. Mr. Scudder states that this grand work was commenced more than a dozen years ago. The Myriapoda and Arachnides are treated of in conjunction with the various orders of insects. Such works as this mark eras in the studies of which they treat.

Entomologische Nachrichten, xvii, No. 3, February, 1891.—Miscellanea Coleopterologica, by C. Schaufuss; *Chevrolatia Grouvellei*, Mexico, n. sp. Tryphonid studies,* by Dr. Kriechbaumer.—No. 4, February, 1891.—On the life-history of *Theridium sisyphium* Clerk., and on *Hemiteles sisyphii* n. sp.* ♂♀, by C. Verhoeff. *Rhizotrogus limbatipennis* Villa, an attempt to distinguish this species,* by E. Brenske. The Libellulid genera *Orthetrum* Newm. (*Libella* Brauer) and *Thermorthemis* Kirby,* by Dr. F. Karsch.

Le Naturaliste Canadien, February, 1891.—Entomological Notes: Descriptions of new species, by J. Hausen; on Coleoptera, *Plerostichus* (*Dysidius*) *pulvinatus*, sp. nov., northern Vermont.

Zoologischer Anzeiger, Feb. 16, 1891.—Note on the musculature of the halteres, by R. v. Lendenfeld.

Notes from the Leyden Museum, xii, No. 3, July, 1890.—Note on *Tyana superba* Moore, by P. C. T. Snellen. On *Cyriocrates zonotor* Thoms., by C. Ritsema. Descriptions of new Coleoptera of the family Eumolpidæ,* by E. Lefevre. Description of a new species of the genus *Ectatorhinus* (Coleoptera: fam. Curculionidæ*), by W. Roelofs.

Compte Rendu. Societe Entomologique de Belgique, Feb. 7, 1891.—Descriptions of new Hesperidæ, 1st part, by P. Mabille; contains a large number of new species from all parts of the world, including *Leucochitonea fuscescens*, Honduras, *Antigonus cupreiceps*, Honduras, *Achlyodes halidus*, Merida, *Narga scopas*, id., *Butleria polydesma*, id., *B. quadristriga*, id., *Cecropterus Dhega*, Jalapa, *Proteides hondurensis* Honduras, *P. midia* Merida, from North America, and the following new genera: *Sape*, *Hypoleucis*, *Narga*, *Eretis*, *Toxidia*. Descriptions of Coleoptera from the mountains of Kashmir,* by L. Fairmaire; *Blapidurus*, *Botiras*, n. gen.

Le Naturaliste (Paris), 1 Mars, 1891.—The Acarinæ of plants, their anatomie, Menegaux. Diagnosis of a new Lepidopter,* P. Dognin.

Die Verwandschaft Zwischen der Noctuiden-Fauna von Nord Amerika und Europa [von] Herr Aug. R. Grote (extract from "Verhandlungen der Gesellschaft Deutscher Naturforscher und Arzte," Bremen, 1890), 7 pages.

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* Contains new species other than North American.

Entomologische Nachrichten, xvii, No. 5, March, 1891.—Review of the Odonatæ collected by Dr. Paul Preuss in German West Africa in 1890,* Dr. F. Karsch; *Mesocnemis*, *Hadrothemis*, *Archiclops*, n. gen.

Biologisches Centralblatt, xi, No. 3, Mar. 1891.—From insect life, Maria Grafin Linden; on some larvæ of *Phryganea striata*.

Le Naturaliste Canadien, March, 1891.—Entomological notes, J. Hausen; *Platynus* (*Anchomenus*) *testaceonotus* n. sp., Ste. Rose, Quebec.

Bulletin de la Societe Zoologique de France, xv, No. 7, July, 1890.—Note on the parasitic fly of the potherbs of the genus *Allium*, X. Raspail; *Musca altiorum* = *brassicaria* L?

Le Naturaliste (Paris), Mar. 15, 1891.—Diagnoses of new microlepidoptera,* P. Chretien.

Bulletin de la Societe d'Etudes Scientifiques d'Angers, Nouvelle Serie, xix annee, 1889; Angers, 1890.—Catalogue of the Coleoptera of Maine-et-Loire, part 3, J. Gallois.

Memoires de la Societe des Sciences Naturelles et Archeologiques de la Creuse, vi, Gueret, 1890.—[Habits of] the Psyllidæ, E. Pissot.

Association Francaise pour l'Avancement des Sciences, 18me Session; 2d part, Notes and memoirs, Paris, 1890.—Fossil insects of Aix, H. Nicolas. Hymenoptera of the south of France—the genus *Osmia*, H. Nicolas. On the distribution of the organs of taste in insects, A. S. Packard.

Societe Linneenne du Nord de la France, No. 213, March, 1890. —Observations on the parasites of *Liparis salicis* Dup., L. Carpentier. No. 215, May, 1890.—Materials for the catalogue of Orthoptera of the Somme, M. Dubois.

L'Entomologiste Genevois, 1re Annee; 11e and 12e livraisons, Dec. 15, 1890.—Monographic essay of the European species and those of neighboring countries of Phalacridæ. Enumeration of the European and Circumeuropean species of Hydronomidæ.* Studies on some Pompilidæ of Europe and neighboring countries. New Hymenoptera.* Materials for the Swiss Dipterous Fauna; all by H. Tournier.

Horæ Societatis Entomologicæ Rossicæ, t. xxiv, St. Petersburg, 1890.—Insects lately collected by G. N. Potanin in China and Mongolia: VII. Buprestidæ, Œdemeridæ, Cerambycidæ,* L. Gangelbauer; *Gaurotina*, *Ischnorrhabda*, *Morimospasma*, n. gen. X. Coleoptera (*Neodorcadion* and *Compsodorcadion*)* and XI. *Cymindis*, *Pseudopelta*, *Lethrus*,* B. E. Jakowleff. XIV. Hymenoptera Aculeata,* Dr. F. Morawitz. XV. Curculionidæ,* J. Faust; *Lechrioderus*, *Rhinodontus*, *Derelobus*, n. gen. XVI. Chrysomelidæ and Coccinellidæ (appendix),* J. Weise; *Phola* n. gen. XVII. Hemiptera-Heteroptera,* B. E. Jakowleff.—Insects lately collected in Central Asia on the journey of N. Przewalski. XVI. He-

* Contains new species other than North American.

miptera-Heteroptera,* B. E. Jakowleff. XVII. Formicidæ from Thibet,* G. Mayr. Turanian Cicindelids, A. Wilkins, 2 plates. Aralo-Caspian Coleopterous Fauna. XIII. Meloidæ and Cantharidæ,* W. Dokhtouroff, 1 plate. Diagnoses of new Coleoptera from central and eastern Asia,* A. Semenow, nine new genera. New and known Histeridæ from European and Asiatic Russia, J. Schmidt; *Dendrophilopsis* n. gen. Some words on *Cychrus* from the Caucasus, A. Starck. Hymenoptera of Korea,* C. Radoszkowski. Proposal of a new method of preserving collections of insects against the attacks of their enemies, A. Wilkins. Addition to my works on the genus *Aricia* s. lat , J. Schnabl. Contribution to the knowledge of the genus *Psalidium* Illig.,* J. Faust. On the Hemipterous Fauna of Russia and the surrounding countries,* B. E. Jakowleff; *Periphima*, *Mimula*, n. gen. On the biology and systematic position of the genus *Chermes* L., N. Cholodkowsky, figs. Essential characters of some genera and subgenera of Anthomyidæ, J. Schnabl. Hymenoptera collected on Mt. Ararat,* Gen. C. Radoszkowski, figs. On the Thelyphonidæ in the collections of some Russian museums, J. Tarnani, 1 plate. Notice on *Lethrus* Scop.,* B. E. Jakowleff; *Abrognathus*, *Heteroplistodus*, n. gen. New Trans-Caspian Fossorial Hymenoptera,* Dr. F. Morawitz.

Bulletin de la Societe Imperiale des Naturalistes de Moscow, 1890, No. 2. [On Rhopalocera], 1 plate. *Tomicus Judeichii* Kirsch, T. Teplouchow.

Travaux de la Societe des Naturalistes a l'Universite Imperiale de Kharkow, t. xxiii, 1890 (in Russian).—Notes on the histological structure of the digestive apparatus of the Myriapoda, N. Bielooussow. Description of some species of the genus *Rhyssa* Grh. of the fauna of the government of Kharkow, W. A. Jarochewsky.

Verhandlungen k. k. zool.-bot. Gesellschaft in Wien, xl. Bd., III. Quart, 1890.—On the stronghold of *Hypoderma lineata* Villers from [the researches of] Dr. Adam Handlirsch, and other researches and observations on Œstridæ, Dr. F. Brauer, figs. *Cecidomyia pseudococcus* Thomas, E. H. Rubsaamen. Larva and manner of living of *C. pseudococcus* n. sp., Dr. F. Thomas.—IV. Quart, 1890.—Identification table of the Heteroceri (Coleoptera) of Europe and the neighboring districts as far as known,* A. Kuwert, figs.

Entomologische Nachrichten, xviii, No. 6, March, 1891.—Diptera collected on the island of Zante by Dr. O. Schmiedeknecht, V. v. Roder. New Chilian species of Vespidæ,* A. Schletterer.

Doings of Societies.

Entomological Section of the Academy of Natural Sciences.—A regular stated meeting was held March 26, 1891, Dr. Horn, Director, in the chair. Members present: Matindale, Laurent, Welles and Skinner.

* Contains new species other than North American.

Associates: Fox, Calvert, Liebeck, Dr. Castle. Visitors: Mr. Nell and Mr. Boerner. The following papers were presented for publication in the Trans. Am. Ent. Soc.: Notes on some *Noctuidæ*, with descriptions of new genera and species, by John B. Smith. On the species of *Trypoxylon*, inhabiting America, North of Mexico, by Wm. J. Fox. Catalogue of the described species of South American *Asilidæ*, by S. W. Williston. A revision of the species of *Euclea*, *Parasa* and *Packardia*, with notes on *Monoleuca* and *Varina ornata* Neum., by H. G. Dyar. Dr. Horn spoke of the importance of those members interested in Coleoptera, collecting *Agrilus*. He had noticed that those inhabiting the United States North of Mexico formed a group peculiar to themselves. There appears to be a series of species in each group, that are parallel to series of other groups. Mr. Martindale mentioned the emergence from the chrysalis of a specimen of *Papilio asterias*. Mr. Welles had found a specimen of *Scoliopteryx libatrix* on the 24th of the month; he did not know whether it hibernated or not. Dr. Horn placed on record the finding of *Bembidium lampros* Herbst. at Cambridge, Mass., and in Michigan by Mr. Schwarz, and at Ottawa, Canada, by Mr. Harrington. The determinations were made by Mr. H. W. Bates, to whom specimens were sent. Mr. Calvert presented a blue-print copy of a manuscript Check-List of the *Odonata* of North America (including Central America and the West Indies), which he had compiled for private use. He stated that according to this list the number of genera and species in the United States was 56 and 240 respectively; that of these there were either in the collection of the Am. Ent. Soc., or in his own collection, American specimens of 53 genera and 159 species, and that two of the remaining genera were represented by European specimens. In but one of the subfamilies were there less than 65 per cent. of the species represented, and that was the *Gomphina*, where, out of fifty species, but 16 were represented. The above figures did not include a number of undescribed species in both the collections. Mr. Martindale exhibited a photograph of the rare moth *Erebus zenobia*, the original of which was captured by Mr. Lewis Ullrich at Tiffin, Ohio. Mr. Laurent reported once having seen a specimen of *Anthocharis genutia* flying in the streets of the city. The Section decided to take part in the annual meet of entomological societies to be held July 4th next. Mr. Philip Nell was elected an associate.

HENRY SKINNER, *Recorder*.

OBITUARY

Dr. J. M. J. af Tengstrom, author of a work on the MICRO-LEPIDOPTERA of Finland, died Dec. 26, 1890, aged 69.

Errata to Vol. II, No. 4.

Page 80, line 18 from top, for *Colymbetes* read *Corymbites*.

ENTOMOLOGICAL NEWS for April was mailed March 28, 1891.

FIG. 1.—ERYCIDES URANIA.

FIG. 2.—EUDAMUS HESUS.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. II. JUNE, 1891. No. 6.

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The illustration this month represents two rare Hesperids, which were described in Vol. I, p. 23, of ENTOMOLOGICAL NEWS. Owing to circumstances the figures could not be given sooner. The plate represents the so called half-tone process of photo-engraving invented by Mr. Ives, of this city. The plate was made by the Crosscup & West Company of 911 Filbert Street, Philadelphia. In previous issues we have presented a number of plates made by the Crosscup & West Company, and it can be readily seen how well adapted the method is for illustrating objects in this branch of natural history. Perhaps the greatest advantage of the method is its comparative cheapness. The older plan of lithography is an excellent one, but it is a luxury that can only be enjoyed by the wealthy, as it necessitates the employment of an artist to make the drawings, and a lithographer to do the lithographic work and printing, all of which are expensive. A plate by the Ives process can be made from a good photographic print of the object, but it is best to have it made from the negative when possible. If the photograph is made on one of the new orthochromatic dry plates, the true color values of the object will be obtained. One of the great drawbacks to the study

of Entomology in this country is the paucity of illustrations. Now that good mechanical processes of illustration are a success, we hope to see tiresome descriptions supplemented by good illustrations. Pl. IV, Vol. II, was made by the Crosscup & West Company from an ordinary negative (not orthochromatic), and the species are readily recognized. This plate would have cost at least five times as much by lithography. There will, undoubtedly, be improvements made in this line, and we look forward to a great future for Entomology illustrated.

———o———

NEW LEPIDOPTERA.

By A. G. Weeks, Jr., Boston.

Hypolycæna festata n. sp.

Hab.—Lower California (San José del Cabo). Expanse, ♂ and ♀, 1.00 to 1.10 inches.

Male.—Front and summit of head covered with light gray, nearly white hairs, deepening in shade as they approach thorax. Antennæ blackish, with white annulations at the base of each joint; club blackish brown, tipped with orange at base, the white extends nearly half way to apex. Thorax above presents generally the same color as wings, and is covered with grayish hairs; beneath it is almost pure white. Legs covered with white hairs, shading into gray at ends. Abdomen above same color as wings, the blue disappearing towards end, where it is replaced by deepening gray; underneath white, shading into yellowish gray at end.

Upperside of fore-wings a deep rich purplish blue, with some lustre; a large discoidal spot of the original ground color not inclining to blackish; the base very slightly dusted with blackish gray scales; the costa edged with blackish gray, at most linear over discoidal cell, and broadening towards apex, then extending down hind margin, of varying width, and covering one-third of marginal area; inner margin without any border. Hind wings: ground color same as fore-wings; inner margin light gray; costa and hind margin with a linear edge of blackish gray, inside of which, on the hind margin, is a fine thread-like line of white, broadening somewhat towards anal angle; inside of this is an almost imperceptible shading of dark blackish gray, bordering the ground color; two thread-like tails from termination of submedian nervure and first median nervule, the former more than thrice the length of the latter, blackish gray, very slightly edged and tipped with white; between these tails the dark shading inside of white line, broadens into a dark spot, and this broadening is repeated below the submedian nervure, but in less degree; at anal angle is an orange spot of small size, bordered at top with white, and bearing a few light blue scales at lower edge.

Beneath both wings are light gray with slight intermingling of whitish scales, and near base a slight shading of darker gray, which latter is wanting in some specimens. The costa of the fore-wing is edged with orange near base, about one-quarter the distance to apex; edge of hind margin with a delicate line of dark brownish gray; the dark edging which appears on upper side and occupies one-third of marginal area, manifests itself underneath by a very slight yellowish tinge, scarcely perceptible on the gray back-ground; on the inner edge of this, one-sixteenth inch from margin, is a transverse stripe of darkish gray elongated streaks extending from the costal border to the lower median nervule, bordered on each side with lighter gray, and always very indistinct, imperceptible on some specimens; inside of these and one-third the distance from margin to base is a series of more or less distinct transverse streaks extending from costa to lower median nervule, bordered with white or very light gray on the outside, and with orange on the inside, the orange being nearly absent at upper part near costa, but becoming more prominent below; this line is the prominent feature of the markings; within this and parallel to it is a line of very indistinct darkish transverse streaks extending to inner margin. On the edge of hind margin of hind wing is a delicate line of dark brownish gray, bordered on inner side with white, or very light gray; within this and one-sixteenth inch from margin is a line of nearly semi-circular darkish gray lines extending from costa to inner margin, occasionally with a few orange scales enclosed and bordered with a little lightish gray; in the middle of the outer two-thirds of the wing is an irregular, but nearly straight series of transverse streaks of dark gray, forming a continuance of the streaks on fore-wing, but more strongly bordered with orange on inner side and white on outer side, and running parallel to the margin and terminating at inner margin about one-third the distance from anal angle to base; in the lower median interspace is a prominent orange spot, bordered above with a black line and enclosing at its base a nearly circular black spot, almost touching hind margin; in the next space below is a similar orange and black spot, less than half the size of the first and less distinctly marked, extending over the nervure to the anal angle; between these spots there is a sprinkling of light bluish scales, sometimes absent.

Female.—Head, antennæ and legs, same as male. Thorax and abdomen the same, except the blue of the male is replaced by the ground color of the wings. Ground color of wings a light grayish blue, near light slate color; some specimens being brighter and with considerable lustre; markings the same as male, except that the discoidal spot is wanting (although slightly apparent on some specimens), and the border of blackish gray on fore-wings, especially on hind margins, is more suffused, and covers one-half the area of the wing, extending from lower angle to a point on costa midway between apex and base. Beneath identical with ♂.

The specimens described were taken near San José del Cabo, at extreme end of the cape, in the month of August. They were

flitting about the flowering vines near sea-level. Described from sixteen males and seven females in my collection; taken by Mr. M. Abbot Frazar in 1888.

Lemonias maxima n. sp.

Hab.—Lower California. Expanse, 1.60 inches.

Front of head covered with white hairs, shading into blackish brown at summit; between head and thorax a "collar" of fulvous hairs. Palpi white, shading into blackish brown at ends. Antennæ blackish, with white annulations at base of each joint; club blackish, tipped with fulvous. Thorax above black, covered with blackish brown hairs; beneath white. Abdomen the same as thorax.

Fore-wings above fulvous and dark brown, with white spots; margins dark brown. Costa dark brown, with a linear fulvous dash near base. The dark brown along hind margins covers marginal area; near hind margin a row of seven white spots in interspaces, the upper two elongated, and all bordered with a soft dash of blackish brown on basal and outer sides, more apparent on basal side. Within these, and one-third distance from margin to base, a second row of seven white spots, larger than the first and cone-shaped (apex outward), bordered with black on basal side only, arranged, the upper three in a line at right angle to costa, the next three at right angle with inner margin and the lower one not in line, but placed nearer hind margin; the upper three are placed in the dark brown of marginal area, the lower four in the fulvous ground color. Above this row and nearly in costal edge, is a small white speck; at the end of cell a large white spot edged on each side with black; below this, extending from median nervule to submedian nervure, another large white spot, bordered with black on basal side only and irregular in shape; between these two, in notch formed by junction of median nervule and median nervure, a small blackish brown spot. In center of cell a round white spot bordered with black, and below this, below nervure, another white spot bordered with black; between these and base two slight dashes of white; nervures and nervules dark brown. Hind wings are marked the same, except that in second row of white spots the second two are much elongated, with basal ends joining and forming a V; also, on the costa over center of cell, a larger elongated white spot with no border.

Wings *beneath* much the same as above, except general coloring is much lighter and brighter and some lustre. Costa of fore-wings edged with white near base, broader at base, and tapering off to a point half way up the wing. White spots more suffused; these forming the V on the upper side of hind wings, blended in one irregular spot, and elongated or suffused enough to join with white spot in cell. Base of hind wings, and inner margin of same, generously dashed with silvery scales.

Described from two specimens in my collection, taken near San José del Cabo, Lower California, by Mr. M. Abbot Frazar.

A Remarkable new Hippoboscid from Mexico.

By C. H. Tyler Townsend, Las Cruces, N. M.

[Read before the Entomological Society of Washington, Feb. 5, 1891.]

Recently Dr. Alfredo Duges, of Guanajuato, Mexico, sent me a unique of a species of Hippoboscidæ, with the request that I describe it. It had been taken on a bat, *Glossophaga soricina*, and was labeled *Trichobius* sp. This genus is queried in Scudder's "Nomenclator," being followed by the authority Gervais, also queried, the information having apparently been furnished by Mr. Bigot. I have searched in vain for any description or any mention of this genus in literature, except the remark by Mr. Bigot that he does not know the genus (Ann. Soc. Ent. Fr. 1885, p. 228), and I am forced to the conclusion that it has never been described, but is perhaps merely a name that has been perpetuated by labels in collections.

The above specimen has much the general appearance of *Strebla*, according to Wiedemann's and Macquart's figures of *S. vespertilionis*, and its similar habit would point to a near relationship with that genus. However, on Bigot's authority, *Strebla* has the claws of the tarsi simple, while our specimen has them bidentate, and further differs in having the first joint of all the tarsi very short, not elongate, not distinctly longer than the three following joints. Loew considered *Strebla* to belong to the Nycteribidæ on account of the first joint of the tarsi being elongate. The above specimen, moreover, has the eyes situated farther forward, near the middle of the head, instead of on the outer posterior angles. Yet, after all these differences, the venation agrees almost exactly with *Strebla*. . If we consider with Loew that the latter genus belongs with the Nycteribidæ, then the present specimen is the first Hippoboscid known to be parasitic on bats. I am inclined to believe, however, that *Strebla* should, from its flattened head and the presence of wings, be included with the Hippoboscidæ, in spite of the fact that it is parasitic on bats. In this connection *S. avium* Macq., said by Loew to be synonymous with *S. vespertilionis*, is recorded as parasitic on pigeons and parrots in San Domingo. It is possible that this synonymy is in error, as the difference in habit would indicate two distinct forms. If such is the case, it might favor the separation of *Strebla* and allied genera, with *Trichobius*, under the family name Streblidæ, as already adopted by some authors.

However this may be, our specimen is remarkable as an undescribed form parasitic on bats, and in spite of differential characters, being probably nearly related to *Strebla*. As I can find no description of the genus *Trichobius*, I adopt the name and describe it as new.

TRICHOBIUS nov. gen.

Head more or less flattened, tubercular, or warted above; eyes situated nearer the middle than the back of the head, distinct; antennæ (?) distinct, apparently single jointed, with a terminal bristle; ocelli absent. Wings present, much longer than the abdomen, with six longitudinal and three transverse veins; first longitudinal vein ending in the front margin at about the outer two-thirds of the wing; second ending a little before the tip; third forking from the second near the base of the wing, and ending exactly at the wing tip; anterior transverse vein a little below (behind) the furcation of the second and third veins; the hindmost (innermost) cross-vein, which may be called the posterior, near the margin somewhat below the anterior and between the fifth and sixth veins; the other cross-vein, which may be called the apical, near the margin of the wing and between the fourth and fifth veins. Legs moderately short, somewhat stout; tarsi 5-jointed, the first joint of all pairs not perceptibly longer than each of the three following, very short; claws stout, two-toothed.

I take pleasure in naming this interesting species in honor of Dr. Alfredo Duges, of the Colegio del Estado, at Guanajnato.

Trichobius dugesii nov. sp.—Entirely tawny, or very pale reddish yellow. Head flattened, warty above, bristly below and at the vertex, rounded in outline, light fulvous; eyes silvery. Thorax deeper fulvous, bristly above; transverse suture distinct, also dorsal and humeral sutures. Abdomen very light fulvous, somewhat bristly on the sides and at the extremity. Legs fulvous, femora enlarged, very bristly above; last joint of all the tarsi as long as the four very short joints that precede it taken together; claws stout, black, two-toothed; tibiæ and tarsi short pubescent. Wings very light fulvous, with veins deeper fulvous; entire wing borders and veins bristly. Length of body, 1⅓ mm.; to tips of wings, 2½ mm.

One specimen, taken on *Glossophaga soricina*, Guanajuato, Mexico.

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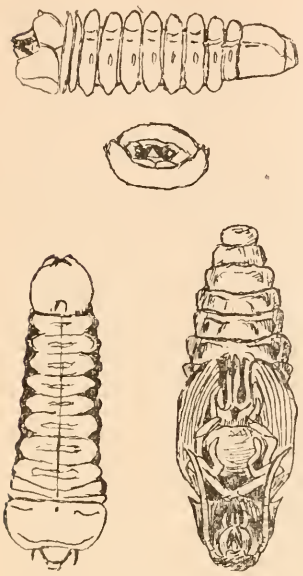
LARVA OF POLYCESTA ELATA Lec.

By G. W. J. Angell, N. Y. City.

Form elongate, flattened, dorsal and ventral surface slightly convex. Color white; segments thirteen, three thoracic and ten abdominal. First four abdominal segments equal in width, fifth to tenth gradually tapering. Last segment conical, truncate;

anal opening longitudinal. Prothorax large, narrowed in front; a fuscous cuneiform median sulcus extending from anterior margin to base. Spiracles nine; first large, fuscous and crescent shaped, situated in fold of the infero-lateral plate of mesothoracic segment at the juncture of dorsal plate. Spiracles second to ninth small, black or fuscous, situated on first eight abdominal segments near anterior margin of dorsal division, increasing in size from second to fifth, and decreasing from fifth to ninth. Head rather prominent, oval and convex, densely clothed with short fuscous hairs, a small punctiform fova on each side. Clypeus emarginate, with dark chitinous borders. Labrum coriaceous, fuscous at base, anterior margin slightly sinuate. Mandibles short, stout, cleft at tip, grooved at base; mentum coriaceous, emarginate and trisinuate. Labium membraneous, cordate. Paraglossæ prominent. Antennæ small, three-jointed, situated near base of mandibles. Length of full grown larvæ from two to two and one-half inches.



Breeds in post oak (*Quercus obtusiloba* Michx), cutting a grooved channel, slightly flattened, in general course parallel to and near the bark. The figures are life size, drawn from larvæ and pupa; raised from specimens received from Cypress Mills, Texas.

SOME NEW AND BEAUTIFUL ÆGERIADÆ.

By Berthold Neumoegen, New York.

Although our fauna contains quite a number of Ægeriadæ, yet the group does not seem so prolific as its European relatives and the American insects, among whom there are some extremely beautiful and striking species, are counted as rarities up to this day. Since Mr. Hy. Edwards has sifted the various genera some

years ago, very few new comers have been announced. It therefore affords me great pleasure to be able to describe some prominent new species.

Trochilium californicum n. sp.—Palpi, head, collar, abdomen and legs, bright sulphur color. Antennæ light brown, thickening in centre and curling at tips, minutely pectinated. Thorax black, with light yellow borders. Primaries and secondaries vitreous; the costa, margins and nervures in both of them, as well as the discal spot of primaries, of light coffee brown. A bright yellow spot at base of primaries. Fringes light coffee brown. The first two segments of abdomen black, with a small yellow intersection of remaining segments a few slightly marked with black lines. Expanse of wings, 37 mm.; length of body, 15 mm.

Hab.—Central California. Type ♀, coll. B. Neumoegen.

This insect comes very near *T. pacificum* Hy. Edw., of which it seems to be the southern representative. It is easily distinguished by its antennæ and abdomen, besides being a smaller insect.

Trochilium minimum n. sp.—Antennæ black, pectinated. Palpi, head and collar yellow, the latter with a black border; patagiæ black, with yellow rims. Legs and abdomen yellow, the latter with black segmentary bands. Primaries and secondaries above vitreous; costæ, margins, discal spots on primaries, nervures, fringes, uniformly brown. Below, costa and discal spot of primaries, as well as anal margin of secondaries, have a yellow tinge. Expanse of wings, 29 mm.; length of body, 10 mm.

Hab.—Denver, Col. Type ♂, coll. B. Neumoegen.

Mr. D. Bruce caught this specimen, and informs me that its larva feeds on willow. He will probably be able to give a full description of the latter next season. This is the smallest North American true *Trochilium* so far known, and comes very near the European *Trochilium melanocephalum* Dalm.

Laruuda palmii n. sp.—♂. Antennæ slightly pectinated. Palpi light red. Head black, collar yellow. Thorax black, overcast with red dust. Abdomen black, with first and fourth segments yellow, and red anal tuft. Below yellow, dusted with red. Legs brownish red; fringes black. Primaries slender, of reddish tinge, overcast with black, especially along costa, apical space and exterior margin. Secondaries about one-third larger than primaries; bright red. Basal half hyaline; black shades at apex, exterior margin and anal angle. Below, primaries black, shading into red at base, costa and along exterior margin. Secondaries red, hyaline; nervures and fringes black.

♀.—Antennæ slender, simple, much larger than the ♂, and wings not so disproportionate. Primaries and secondaries bright red; costa and

exterior margins prominently black, with black areas at apex and anal angle of secondaries. Below, a large part of inner space of primaries black; costa and margins bright red. Secondaries with black nervures. Expanse of wings, ♂, 25 mm.; ♀, 27 mm.; length of body, ♂ 9 mm.; ♀, 11 mm.

Hab.—South Arizona. Types, three males and one female; coll. Charles Palm and B. Neumoegen.

I take great pleasure in dedicating this beautiful insect to my friend, Mr. Charles Palm.

Albuna vitrina n. sp.—Head black; palpi and collar yellow. Thorax black. Antennæ brown, pectinated; caudal tuft narrow and black. Legs black, with yellow joints. Primaries and secondaries vitreous; prominent discal spot on primaries; costa, margins, discal spot and nervures brown, with a basal dot of same color on both wings. Below the same, except that nervures of costa and interior margin of primaries are pale yellow. Expanse of wings, 21 mm.; length of body, 10 mm.

Hab.—Ft. Calgary, N. W. Territory. Type ♂, coll. B. Neumoegen.

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NOTES ON THE EARLIER STAGES OF LEPISESIA FLAVOFASCIATA Barnst.

By Carl Braun, Bangor, Me.

(Continued from p. 89, Vol. II, No. 5.)

The freshly-laid egg resembles that of *Deilaph. chamænerii* very much; indeed, at the first sight, one who is acquainted with the ova of the Sphingidæ would take it to be nothing else, so striking is the resemblance in size, color and form. It is grass-green, with a smooth surface without granulations, in form spheroidal; diameter about one-third of an inch; they change before hatching, which takes place in from five to six days, to a yellowish white color. The young larva is three-sixteenths of an inch long, cylindrical, yellowish white with a large head, on each side of which is a large black eye-spot. The head resembles in comparison that of a pug dog. All the legs are tipped with black; the horn, which is short, stout and straight, is tipped with black. The first molt is made in seven days. The color changes now to bluish green, with a faint rosy, irregular longitudinal stripe on the back. The color on tip of horn is violet or black, it grows shorter at every change, till it finally is discarded at the third

molt, and only a shiny botton remains, which has a black rim. After the third molt the larva changes to light brown on sides and darker above, beneath rosy.

Of nine full grown larvæ the smallest measured 1.50 inches, the largest 1.68 inches. The color is of a uniform chocolate with a smooth surface, rosy beneath; legs tipped with black, two large black eye-spots, one on each side of head, which is large in comparison to body. The larva is stout and cylindrical; they feed from thirty-five to thirty-seven days on *Epilobium*. Pupation is on top of ground, among leaves, making an attempt at a light cocoon similar to the manner of *Hemaris thysbe* and *diffinis*.

The newly-made pupa is from seven-eighths to one inch long, stout, with prominent head of ochre yellow, which changes to chestnut in some and blackish brown in others. The cremaster is short and stout, with seven terminal hooks; in some, nine; in others, which are barbed, a silk thread attaches the hooks to the leaf cocoon. The habits of the larvæ are peculiar; they feed mostly at night, hiding on the under side of the leaf by day with head thrown to the right side of body; they are very restless when young, but soon become quiet after they have once settled on their food; they require a great deal of care, and need plenty of good air, and will not thrive in the glass jar, but will do well on the food put in water with a fine gauze-net over it in a shady place.

In the next paper I will attempt to describe the earlier stages of *Smerinthus cerisyi*.

ELEMENTARY ENTOMOLOGY.

LEPIDOPTERA.

The eggs of butterflies and moths are very carefully laid by the female insect on the appropriate plant on which the young caterpillars are destined to feed. They are unerring botanists in this respect, and never make a mistake, although they sometimes deposit eggs on plants the leaves or stems of which mingle with those on which the larvæ are to feed, and to which they soon find their way. The eggs are secured to the plants by a kind of glue or cement, which soon dries on exposure to the air, and is necessarily insoluble in water. They are laid singly or in varying

numbers. Sometimes they are all laid together and with much regularity on the leaf or around a twig; in this case the young larvæ are gregarious, and continue to feed in a community. Some species are gregarious, while the larvæ are young, but separate as they approach full growth and shift for themselves. The eggs, to a certain extent, mimic their surroundings to protect them from spiders and birds, and also from parasites that feed on them. The eggs of *Tolype velleda* are laid in strings, and are covered by hairs from the tuft at the end of the abdomen of the female moth and they closely resemble a hairy caterpillar.

"The eggs of butterflies are composed externally of a thin pellicle, separated into the base, walls and micropyle (apex of the egg and place where the male fertilizing cells enter)." The micropyle is made up of very small cells, and the walls are either smooth or variously sculptured. They vary considerably in shape, the principal varieties being globular, hemispherical, cone, or spindle shaped. White or green are the prevailing colors, although they may in some cases be yellow, red or brown. As the young caterpillar develops, its color may be seen through the thin and delicate walls of the shell, and this makes the egg appear black. The eggs of the Satyrinæ, Nymphalidæ and Papilionidæ are globular; in the Hesperidæ they are usually hemispherical, and in the Pierinæ they are spindle-shaped. The hatching period is a variable one, depending on temperature and exposure to the direct rays of the sun. It may be stated in a general way that they hatch in from three to twenty days, according to the species. Some species pass the Winter in the egg state, although the vast majority live during this period as chrysalids. The eggs of lepidoptera make very pretty and interesting objects for study under a magnifying-glass or microscope, and the different eggs of the different species bear the same relation to each other as do the different species in the perfect or imago state, and there is no doubt but what a system of classification could be formulated from these alone. The eggs of some species are very readily found, and the writer would urge the beginner to look on cabbage plants for the odd little spindle-shaped eggs of *Pieris rapæ*, and study them under a glass and see the micropyle, etc., and then place them in a box with the food-plant and rear the young larvæ to the perfect state, and thus gain a knowledge of the life-history of one species, which will be a good guide to the study

of all others. The eggs of *Danais archippus* are also readily found on the common silk or milk-weed (at the present time, May 10th). They are generally deposited on the underside of a leaf, and usually only one on a plant, and if the leaves are carefully examined the eggs are easily seen. They are conical in form and longitudinally ribbed, and between these run transverse ones. They are white when laid, but gradually turn yellow, and just before the young caterpillar is to emerge they change to a steel-gray color.

Another common species which is often found depositing its eggs on clover is *Colias philodice*. The egg of this species is in the shape of a spindle, and is attached to the plant by the point or one end. They are pale yellow when first laid, but soon change to a dark crimson, and are very interesting and pretty objects. They are also longitudinally ribbed and crossed by striæ. It would be well if egg hunting were considered more profitable by lepidopterists, as there is no doubt but what great expertness could be acquired in this line, and in this way much interesting knowledge would be gained, and when they were carried through to the perfect state nice, bright, and faultless specimens would be obtained.—Ed.

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Pupa of Plastocerus Schaumii.

By Frank E. Blaisdell, M.D., Coronado, Cal.

Length 13.4 mm. Form elongate, curved, non-pubescent. Color of head, thorax and members, dirty white, with slight tinge of yellow; head and thorax opaque; members translucent; abdominal segments fulvous; central portions opaque; borders semi-transparent. Head deflexed and sunken, rather deeply into prothorax; front full, with two slight depressions separated by a median longitudinal ridge; denticulation of mandibles visible. Antennæ curved, thrown back so that middle of the convexity touches corresponding portion of the side of prothorax; apices near or resting against knees of anterior and posterior limbs, which approximate; pectinations directed inwards and backwards. Prothorax quadrate, flexed upon mesothorax; anterior angles overlapping the eyes, so as to cover the posterior half of their surface; posterior angles prominent, strongly divergent; anterior border bearing two spines, each being situated at the junction of the middle, with an outer third. Spines moderately divergent, basal halves straight, stout; apical portions slender, curved, chitinous; tips piceous. Mesonotal region depressed; elytral pads striate, much narrower than those of wings, scarcely reaching base of fourth abdominal segment. Metanotal region full, prominent; alar pads

with apices nearer median line and posterior to those of elytra, overlapping base of fourth abdominal segment; anterior pair limbs extending to base of second abdominal segment; median pair to opposite base of third, posterior pair to centre of sixth segment. Abdomen depressed, moderately curved upon itself; sides feebly convex. Segments nine, decreasing very slowly in width to fifth, then more rapidly; third, fourth, fifth and sixth, subequal; first shorter than second, which is shorter than third; eighth two-thirds as wide as third, shorter than seventh; ninth (anal) sculptured, partly sunken within eighth; from its dorsal surface and beneath posterior border of eighth two spines project, which are divergent, slightly recurved, chitinous. Sexual characters: male distinguished by the longer antennal pectinations. There is no appreciable difference between the eighth ventral segments in the two sexes.

Two specimens (♂ and ♀), Coronado, San Diego County, taken June 24th and July 1st, 1890, from 20.32 cm. below the surface of the soil. Position and pupal chamber had been destroyed before they were observed. From the appearance and position of the spines, I would infer that the pupa approaches the surface previous to the emergence of the imago. The adult insect is vividly portrayed at this stage, the quadrate pronotum suggests *P. frater*. One specimen was permitted to complete the transformations, the imago possessing a narrow prothorax and divergent posterior angles, characteristic of *Schaumii*. Six days previous to the appearance of the imago, the eyes and mandibles began to darken; prothorax darkened, but slightly. The hardening and darkening of the imaginal exoskeleton progressed very slowly; head and thorax had darkened by the fifth day; abdomen and elytra by the tenth day. The larva has not yet been recognized, but believe I possess it among several species of Elaterid larvæ.

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Note on Sphenophorus minimus Hart.

By John Hamilton, M.D., Allegheny, Pa.

Examining some indeterminata taken here, which have been accumulating during several years, two specimens of *Sphenophorus minimus* Hart were discovered,—a species described lately by Mr. A. C. Hart in an article entitled, "The Corn Bill Bugs," in which he writes an excellent "Key to the Illinois Species" (*pertinax*, *robustus*, *costipennis*, *scoparius*, *sculptilis*, *cariosus*, *melanocephalus*, *Sayi*, *placidus*, *minimus* and *parvulus*). The article treats these species exhaustively, accompanied by three plates of well executed, enlarged figures, and is published

in the 16th Report of the State Entomologist of Illinois, being the 5th Report of S. A. Forbes for 1887–88, pp. 58–74, and plates I, II and III in part.

As this species is evidently local, and perhaps in many collections as an indeterminate, a presentation here of its distinguishing characters may be opportune, as comparatively few, to whom it might be useful, are likely to meet with the Report in which the description is published.

Sphenophorus minimus Hart.—Black, opaque when denuded, covered with a thin cinereous indument, argillaceous in the large punctures, except rostrum before antennæ; antennal club and basal portion of anterior femora internally, shining black; funicle and tarsi polished rufous. Rostrum, ♂, half as long as thorax, finely punctured for a short distance in front of the eyes and not deeply canaliculate, slightly arcuate, moderately compressed, scarcely wider to tip, base abruptly dilated over the scrobes and coarsely punctured, as is likewise the head; thorax longer than wide, nearly as wide as the elytra, moderately constricted at apex, base and apex behind constriction subequal, slightly widest before middle, behind which the sides are nearly parallel to base, which is roundly truncate each side; surface sparsely, irregularly variolato-punctate, with large shallow punctures; a small, median, smooth space, tending to obsolescence, or to project backwards as a fine line; anterior constriction with close-placed, discrete, shallow, variolate punctures to margin; scutellum elongate, narrow, not channeled, coated normally, but liable to abrasion. Elytra widest near base, gradually narrower to tip, finely striate, striæ each with a few distant, coarse, variolate punctures placed transversely in rows, the depressions around which make the surface uneven; intervals flat, equal, when denuded finely uniseriately punctured; pygidium shallowly punctured, pubescent with yellow bristles near tip, and on each side of apex with a small tuft. Underside with small, discrete, variolate punctures. The centre of all the punctures is luteous, which, contrasted with the cinereous surface, causes a spotted appearance. Length 5 mm.

This species belongs to the fifth section of Dr. Geo. H. Horn's synopsis (Proc. Am. Phil. Soc. Phil. xiii, 421), where it forms a third division under Section A, with this definition: *Thorax sparsely and irregularly punctured with large variolate punctures.* The above characters are derived from the two specimens in my collection. Mr. Hart's description was made from six males and five females, taken from floating driftwood and logs near water, at Urbana and Springfield, Ill. Length 5–6 mm. The smallest species in our fauna, Mr. Hart says. I have ten examples of *parvulus* from Illinois and Iowa, none of which exceed 5 mm. Measurements from anterior margin of thorax.

Preparatory stages of Spilosoma latipennis Stretch.

By Harrison G. Dyar, New York City.

Egg.—Not observed; the eggs had been entirely devoured by the little larvæ, but, judging from the marks left on the leaf, were about .6 mm. in diameter.

First stage.—Not observed, but judging from the cast skins very similar to the second stage. The head was pale, the jaws brown, width somewhat over .3 mm.

Second stage.—The larvæ were found in this stage June 26th on an ash leaf, some twenty or thirty together. Head pale whitish, brownish on the clypeus and at vertex; ocelli black; width .4 mm. Body whitish, the warts concolorous and hardly distinguishable, bearing long whitish hairs. Length of larva 3 mm.

Third stage.—Head shiny, pale yellowish, faintly brownish at the vertex, ocelli black; jaws brown; width, .6 mm. Body as before, the warts small, concolorous, and bearing long blackish hairs.

Fourth stage.—Head as before, but not brownish at the vertex; width .9 mm. Body pale whitish, semi-transparent, the food showing through as a darker band. Hair rather long, whitish. Length 8 mm.

Fifth stage.—Head pale straw color, ocelli black, mouth brownish; width 1.1 mm. Body as before, the hair whitish and rather abundant.

Sixth stage.—As in the previous stage; width of head 1.3 mm. An orange subdorsal spot on joint 12, and a much fainter one on joint 3.

Seventh stage.—As before; width of head about 1.6 mm. (measurement not very accurate) A blackish subdorsal shade band and row of segmentary white dorsal spots faint at the extremities of the body. Hair rather long, mixed with black.

Eighth stage.—Head testaceous; jaws dark brown; ocelli black; width 2.1 mm. Body sordid greenish, mottled with black over the dorsum, a white dorsal and super-stigmatal line and pale stigmatal shade; spiracles white in a narrow black border; warts large, concolorous. Hair rather bristly, of irregular length, tawny brown, mixed with blackish; on joint 12 an orange spot surrounding the wart of row three. Thoracic feet testaceous.

Ninth stage.—Head brownish testaceous, mouth pale, ocelli and jaws black; width 2.3 mm. Body nearly black from the thick mottlings, the dorsal and super-stigmatal lines white; spiracles as before. Thoracic feet testaceous, abdominal feet black outwardly; a subdorsal orange spot before wart three on joint 12. Venter as black as the body above; warts large, pale yellowish. Hair foxy red, mixed with blackish.

Tenth stage.—Exactly as in the previous stage; width of the head 2.6 mm.

Eleventh stage.—Head testaceous brown, labrum, mouth and antennæ pale; width 3.1 mm. Body nearly black, with only the merest traces of the lines, the orange spots on joint 12 small; spiracles white. Thoracic feet brownish testaceous, the claspers of the abdominal feet pale; warts

pale; hair bristly, blackish, appearing foxy red next the body. The larva resembles the dark brown form of *Spilosoma virginica* in appearance.

Cocoon formed of the larval hairs held in place with silk as in other species of *Spilosoma*.

Pupa robust; nearly straight along the ventral line, slightly contracted along the ventral line, slightly contracted laterally behind the thorax. Abdomen large, rounded, the last segments tapering rapidly; cremaster flat, short and thick, furnished with many short knobbed spines. Thorax and cases creased; body coarsely, but densely punctured. Color pitchy black, shiny, the spiracles pale reddish.

The larva matured and began to form its cocoon September 3d, giving a larval period of over ten weeks. A male imago emerged in a warm room on March 12th, the next year.

It will be observed from the measurements given above that the widths of head follow the calculated series well, except the ninth stage, which is entirely superfluous, being inserted as a geometric mean between the eighth and tenth stages at a much higher ratio than any other stage, viz., calculated, .4, .5, .7, .9, 1.1, 1.3, 1.7, 2.1, 2.6, 3.2, ratio .80, giving but ten stages; found .3, .4, .6, .9, 1.1, 1.3, 1.6, 2.1, 2.3, 2.6, 3.1. The ratio between the 8th, 9th and 10th stages as found is .90, which, if kept up, would interpolate an extra stage between every one. Does this indicate that this species has normally but ten stages, and that the 9th as observed by me is unusual, being produced by scarcity of food or some other cause? It is to be noted that I did not find its markings to differ at all from those of the 10th stage.

Mr. Hulst, in the brief, but only published account of this species,* apparently found but six larval stages, but in the absence of any measurements it is useless to speculate on this. While I do not deny that the number of stages of this as well as other species, may be subject to variation under varying conditions of climate or food, or even under normal conditions, I hold that it is very far from having been proved. This will require accurate observation, in my opinion best accompanied by measurements, so that it can be seen where the variation, if any, occurred, as well as to serve as a check on the accuracy of the work.†

Food-plants.—The larvæ are probably omnivorous. Though found on ash, they seemed to prefer various herbaceous plants as they became older. Larvæ from Dutchess County, New York.

* Bull. Brooklyn Ent. Soc. viii, 120. † See further Psyche, v, 420.

Callidryas eubule in Missouri.

By R. R. Rowley, Curryville, Mo.

My acquaintance with *Callidryas eubule* began in the Summer of 1881. About the middle of August numbers of this splendid insect flitted about the streets of Louisiana, Mo., and I succeeded in taking a fine female on garden flowers. As I had never met the species before, and as all the specimens observed seemed to be moving in the same direction, as well as because of the sudden appearance and disappearance of so great a number of strange insects, the impression was left in my mind that they were inhabitants of another clime and were migrating.

A close watch through the Summers of 1882, 1883 and 1884, failed to discover a single specimen, and I had about abandoned all hope of adding to my meagre knowledge of this golden winged fairy, when returning from a day's tramp in the woods and fields, about the middle of the afternoon on the 17th of October, 1885, a fine male *eubule* sailed quickly across my path and settled for a moment on a tall Autumn flower just over the fence, almost beyond my reach. I collected myself quickly from the astonishment into which its sudden appearance had thrown me, and with the full length of my long net-pole, carefully and tenderly swept in the treasure. It was a bright, new specimen, and had doubtless flitted out into the sunshine for the first time that pleasant October day, as not a scale had been disturbed on its pretty wings. I had added a new and interesting chapter to the few facts gathered four years before, and had completely reversed my first impressions, being now satisfied that *eubule* dwelt here among us.

Through several succeeding Summers I made frequent trips to a bunch of *Cassia marilandica*, four miles away, but without finding an egg or a larva (I had found this clump of *Cassia* in chasing *Terias nicippe*), having learned from some entomological source that the larva of *eubule* feeds on *Senna*. Though I saw occasional imagos high on the wing, I learned nothing concerning its preparatory stages till the mid-summer of 1888. In that year *Terias lisa* was very abundant, and I had observed the females of that species depositing eggs on *Cassia chamæcrista*, a very abundant plant along the railroad and in adjoining fields near Curryville. In searching for the larvæ of this latter species, on the 4th of

August, I found seven fine *eubule* caterpillars. Later in the same month I obtained two more and captured a number of imagos.

Eubule is a very difficult butterfly to take, usually soaring beyond the reach of the net. I have taken it at mud and on red clover and "milk-weed" blossoms. It is wary and difficult to approach, settling on a flower but for a moment.

The grown larva is from 1¾ to 2 inches in length, and varies in color from a light green to a yellowish green, the entire body being covered with raised black points. There is a bright yellow longitudinal line or band below the spiracles, and on each segment there is a cross line or band of dark blue, preceded by a broken line of the same color extending downward to the longitudinal band. The light green larva wants these cross lines of blue, black segmental dashes, encircled by blue, either side of the yellow band taking their places. The underside of the body is light green. Head yellow, with a yellowish green face. Top of head set with raised black points. Feet yellow. None of the larvæ, before the fourth moult, show the cross blue bands. The young larva is light yellowish green with the yellow band and raised black points.

The pupa is 1½ inches long, a beautiful light green with a mid-dorsal dark line and a light lateral line to each side. Wing cases very much humped, giving great breadth to the body. A long thorn like spine projects forward from the front of the head. Length of pupal period ten days. From the suspension of the larva to pupation is from twenty-six to twenty-eight hours.

Eubule seems to be a very delicate insect and difficult to rear in confinement. Out of nine larvæ handled, but two reached the imago, and these were about ready to suspend when found. The remaining seven died after suspending, either just before or just after pupation, the fine green of the new pupa soon becoming a dark putrid mass. Besides *eubule*, I have found feeding on *Cassia chamæcrista* the following species: *Terias lisa* and *Hyperchiria io*.

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No number of the NEWS will be published for July or August. These two months will be devoted to collecting by the subscribers and editorial committee.

This number of the NEWS contains 28 pages.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

TO OUR PATRONS.—We want to increase the number of pages of ENTOMOLOGICAL NEWS and thereby augment its usefulness. To do this we must obtain a larger number of subscribers and thereby increase the income. There are doubtless many persons in this country who are interested in the study of Entomology, who have not yet heard of the existence of such a journal as ENTOMOLOGICAL NEWS, and who would probably become subscribers if their attention were called to it. The question is, how to reach these persons? It has been suggested that each subscriber make a list of the names and addresses of all whom he or she know are interested in the study and send it to the Editor, that a sample copy may be sent to all who are not already on the subscription-list, as an invitation to subscribe. This is a good suggestion, and we therefore ask our subscribers to assist us in this way. As another method of increasing the list, we have concluded to offer premiums for **new** subscribers, and call attention to this in a notice to be found on the second page of the cover of this number of the NEWS.

THE IDEAL entomological journal is one that covers the whole field, and each number should contain matter that will please all its readers. The dry scientific article should have a place along with that of a more popular and lighter vein. A journal, any number of which is made up largely of a dry synopsis of a single family in an order, is of value to only a very few readers, and the large remainder are disappointed and obliged to wait another month in hopes of finding something more tempting. The subscribers are made up of the professional entomologist, the systematist, the lover of nature in general, the amateur entomologist, those interested in Entomology in general, those interested in a single order, the student and the beginner, and the scope of a journal should be such and the paging sufficient in each number to supply readable matter for all. The lepidopterist, the hymenopterist, or the neuropterist, cares little for an article on some obscure family of beetles, and the coleopterist is equally dissatisfied with the same program in the other orders; therefore, the ideal journal is one that covers the subject from A to Z; or, to give an illustration, the intergrades may be filled in between to such articles as these, "Notes on the Genitalia of Gynandromorphous Macro-lepidoptera" and

"There was an old man in a tree
Who was horribly bored by a bee.
When asked 'Does it buzz?'
He replied, 'Yes, it does,
It's a regular brute of a bee.'"

ED.

Hetærius brunnipennis.—A recent addition to the collections at the Academy of Natural Sciences of Philadelphia is a hill of the mound-building ant, *Formica exsectoides*, from the vicinity of Altoona, Pa., containing a living colony of ants, measuring about three feet in diameter at the base and about two feet high. It is remarkable, considering the size, that over two hundred examples of *Hetærius brunnipennis* have been captured upon the exterior of the hill, seemingly creating a doubt as to whether it is really a colony of ants, or one of *Hetærius*. The first specimens were observed by Mr. W. J. Fox, on March 30, 1891, and since then the writer has taken small lots at intervals of three or four days, covering a period of six weeks, the specimens gradually getting less abundant. The lower half of one side of the mound, which is almost perpendicular, is completely honey-combed by exposed galleries, and out of these occasionally one or two *Hetærius* would suddenly make their appearance and roll to the bottom of the hill. Apparently the ants had carried these to the open ends of the galleries and unceremoniously tumbled them out. A great many times ants were observed emerging from the galleries with *Hetærius* in their jaws, which they would carry a short distance from the mound and drop, the ants returning without giving them any further attention. Nearly all the *Hetærius* that were seen in motion, were intent upon re-entering the hill, but were usually bottled before they could do so. Sometimes the *Hetærius*, when touched with a wisp of straw, would double up their members and drop, feigning death after the manner of other members of the family. At other times when touched they would display considerable activity, although awkward and unwieldy in appearance could run along quite rapidly. An examination of small heaps of dead ants in the extreme corners of the table upon which the mound has been placed, failed to discover the presence of any *Hetærius*. But one other coleopter was taken, a species of Pselaphidæ. A small dipter was noticed in numbers running about, continually in motion, but rarely taking wing. What the exact contents of the mound may be will remain in doubt, as all observations were necessarily made from the exterior, it being the intention to preserve the hill in its entirety.—Chas. Liebeck.

Excursion!—The entomologists of New York, Brooklyn, Newark, Philadelphia and localities near these cities are invited to attend the second annual field meeting to be held under the auspices of the entomological societies of these cities at Jamesburgh, N. J., on July 4th next. Jamesburgh is on the Amboy division of the Pennsylvania Railroad, and may be reached from New York, via. Monmouth Junction, 7.20 A.M.; Newark, 7.50 A.M.; Philadelphia, Broad Street, 6.50 A.M.; Camden, 7.00 A.M. Later trains leave New York via. Rahway and Philadelphia on the Long Branch division, but it is urged that the early train be used, as this will bring the party into Jamesburgh at the same time. All those desiring or expecting to attend will please notify one of the members of the committee, from whom also all further information can be obtained. The notification is important, in order that proper arrangements may be made at Jamesburgh.

Committee: C. P. Machesney, 65 Broadway, N. Y.; Dr. Henry Skinner, Amer. Ent. Soc., Logan Square, Philadelphia; Prof. J. B. Smith, New Brunswick, N. J.; H. W. Wenzel, 1115 Moore Street, Philadelphia, Pa.

Of *Amphion nessus*, Dr. Holland is recorded as saying (in Smith's "Sphingidæ of America North of Mexico," page 126) that "if flying in the middle of the day he 'has noticed that it always keeps in the shadow, or slyly hovers about among the thick masses of the *Syringa* blossoms in the deep umbrageous recesses, where it is not easily reached by the net of the collector.'" This is at variance with my observation. June 1, 1890, I collected some 18–19 imagines (imagos) in the hot sunshine, between 1 and 3 P.M., all feeding on the flowers of Blue Flag (*Iris versicolor*). My attention was called to the spot in a swampy meadow in one of our suburban districts of Westchester County by a few fine *Papilio turnus* hovering over the blue masses of *Iris*. The *A. nessus* had no opportunity to hide in trying to obtain nectar from the open flowers of Blue Flag, and was easily taken while exploring the tubular *Corolla* for dainties. Out of some twenty specimens I saw on two successive Sundays feeding on *Iris versicolor*, I only missed one. Neither did they exhibit any greater shyness than does *Hemaris thysbe* visiting the thistle flowers. Of course the large flowers of Blue Flag do not compare favorably with the thyrses of Lilac blossoms, many hundreds of which are closely crowded together, and a hawk moth in visiting its flowers, of necessity must frequently appear to be in the shadow of the larger flower truss of *Syringa vulgaris*, or *S. persica*. In July, 1889, I took a single specimen of *A. nessus* feeding on the flowers of a *Deutzia crenata*. I could not readily take it, because it so dodged in and out among the white flowers of the drooping *raceme*, that it was difficult to follow its rapid movements. Go to Blue Flag when in flower, and it is not difficult at all to take *A. nessus*.—R. Kunze, M.D.

In some years' collecting in Essex County, N. J., I have always noted, with more or less interest, the small colonies of one of our common "lady birds," *Megilla maculata*, which hibernate under leaves, stones, etc., through the Winter. These colonies have always ranged from 100 to 200 individuals with occasionally one of some 500. On March 6th I found one of unusual size, and being curious as to the number it contained, I collected the entire colony with the help of my brother. It numbered 1412. They were on the south side of a chestnut tree under a small cluster of old chestnut burs. I thought this large number collecting, whether for social or sexual purposes (and I am inclined to think the latter has a good deal to do with it), might be interesting to some of the readers of Entomological News who are coleopterists.—Ralph Hopping.

A word about *Argynnis idalia*, which are with difficulty taken even when feeding on their favorite swamp milkweed (*Asclepias incarnata*). Not far from New Rochelle, Westchester County, N. Y., in a wet swamp, I obtain some specimens every season. In July, 1890, when this milkweed was in full flower, I went there as usual with my largest net, fifteen inches in diameter, with which I can capture twice the number than with an

eleven inch affair. After securing a specimen or two it turned to a drizzling rain. Nothing daunted, my feet being wet already, I tramped hither and thither through the long, wet grass and tall weeds, every now and then starting up an *Arg. idalia* much in the same manner that a hunter flushes woodcock in a swamp. The *A. idalia* were thoroughly wetted like myself and never flew far away, so that I could easily mark the spot, walk up stealthily and readily take my prize.—RICHARD E. KUNZE, M.D.

Mr. EDITOR.—You refer in the May number of your esteemed paper to a noctua caught by Mr. J. T. Mason, of Houston, Texas. I identified this insect last Summer as belonging to the genus *Euglyphia*. Its correct name is *Euglyphia fastuosa* Guén. (Guén. No. 186. Herr.-Sch. Cuba, 1868, p. 9), and it is fully described in Dr. J. Gundlach's "Contribucion a la Entom. Cubana," p. 304. This insect is likewise found in the West Indies and South America. In Cuba its larva feeds on malva-té (*Cæchorus silignosus*). It transforms above ground, making a sort of nest from little bits of grasses. Prof. J. B. Smith, in his new check list, will assign it to the genus *Noropsis* Guén., "of which," as he says, "it is the type, *Euglyphia* being restricted to other species by him (Guén.)."—NEUMOEGEN.

The synonymy of the moth is *hieroglyphica* Cramer, = *elegans* Hüb., = *fastuosa* Guénee.—ED.

THE LAST of August, 1890, I took in southern Michigan a good female of *Apatura clyton*. I do not know that it has been reported before from Michigan. The fact that it is the only one I have ever taken, and that I took it on ground that I have worked over for several years, made it quite noticable to me. I had gathered together a lot of ripe pairs, put them in a pile, and had crushed them as a bait for Graptas and *Limenitis ursula*. This *Apatura* was taken on the crushed pears with those mentioned.—I. N. MITCHELL, Fond du Lac, Wis.

A SAVANT'S HORRIBLE DEATH.—Algiers, May 18th. The French savant, M. Kunckel Herculais, the president of the ethnological society, who was employed on the government mission of investigating the locust plague in this province, has met with a horrible death. While examining a deposit of locusts' eggs at the village of Sidieral he was overcome with fatigue and the heat, and fell asleep on the ground. While sleeping he was attacked by a swarm of locusts. On awakening he struggled desperately to escape from the flood. He set fire to the insect-laden bushes near him, but all his efforts proved ineffectual, and, when finally the locusts left the spot, his skeleton was found, together with his hair, beard and necktie. The rest of him had been entirely devoured. Mr. Herculais was a member of the French Academy, and the author of several valuable works on insects.

Psyche confederata G. and R. has been quite abundant for two years past on the grounds of the Ohio State University, Columbus. I infer, from references made to it by Mr. H. G. Hubbard, in "Insects Affecting the Orange," 1885, that it is not known to be widely distributed or common elsewhere.—D. S. KELLICOTT, Columbus, Ohio.

THE LAST SEASON was not a very propitious one for collecting lepidoptera in this country, and most of my collectors did only fairly well. Mr. Bruce succeeded in obtaining some of the rarer Arctians, Cossidæ and Bombycidæ in Colorado. Mr. Bean, of Laggan, raised the beautiful *Colias elis* ♂ and ♀, *Antarctia Beanii* Neumg., etc., from the larvæ, and captured a new *Chionobas*, coming very near *subhyalina* Curt. My collector on the upper Indian River, Fla., caught several specimens of the handsome sphinx *Dilophonota caicus* Cr., which will have to be added to our fauna. So far the latter insect has only been obtained in Hayti, Honduras and some parts of South America.—B. NEUMOEGEN.

MESSRS. Fox and Johnson arrived in Philadelphia, Thursday, May 14th, after a successful collecting tour in Jamaica. They saw one specimen of *Papilio homerus*, but did not succeed in capturing it.

Prof. I. N. MITCHELL reports *Vanessa californica* as having been taken at Fond du Lac, Wis.

Mr. H. F. WICKHAM left May 9th for a collecting tour in Alaska. He expects to be gone until September.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Insects have been named for A. F. Winn, W. C. Wood, F. H. Hillman, T. W. Glover and E. B. Southwick.

Entomological Literature.

TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1891, pt. 1, 178 pp. 9 plates.—Notes on the Genitalia of a Gynandromorphous *Eronia hippia*, by Geo. T. Baker. A monograph of British Braconidæ, pt. 4, by Rev. Thomas A. Marshall. African Micro-Lepidoptera, by Right Hon. Lord Walsingham. New species of moths from southern India, by Col. Chas. Swinhoe. Conspicuous effects on the Markings and Coloring of Lepidoptera caused by exposure of the pupa to different temperature conditions, by Fred. Merrifield. On some recent additions to the list of South African butterflies, by Roland Trimen.

THE BUTTERFLIES OF NORTH AMERICA, by W. H. Edwards; third series, pt. 11.—This contains the life-histories of *Apatura flora, Satyrus meadii* and *Chionobas chryxus*, illustrating eggs, larva, chrysalids and imagos. Mr. Edwards is to be congratulated in having reared *C. chryxus* successfully, and giving such a beautiful illustration of the life-history of a genus which so little had been known of the earlier stages previous to the publication of his work.

PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON, 1890, pt. 4. —On the Heteromerous Coleoptera collected by Mr. W. Bonny in the Aruwimi Valley, by G. C. Champion.

WEST AMERICAN SCIENTIST, January, 1891.—A new Rhaphiomidas from California, *R. acton*, by D. W. Coquillett.

PROCEEDINGS OF THE LINNEAN SOCIETY OF NEW SOUTH WALES, 2d series, vol. v, pt. 1st.—Contributions towards a knowledge of the Coleoptera of Australia, No. 6. New Lamellicornia and Longicornia, by A. Sidney Oliff. A revision of the Australian genus *Ogyrris*, with description of a new species, by B. W. H. Miskin. Descriptions of hitherto undescribed Australian Lepidoptera (Rhopal.), principally Lycænidæ, by W. H. Miskin. Diptera of Australia, pt. 8, the Tipulidæ longipalpi, by Fred. A. A. Skuse. Note on *Danais petilia* Stoll., by H. H. Miskin. Notes on Australian Coleoptera, with descriptions of new species, pt. 6, by Rev. T. Blackburn. Studies in Australian Entomology. No. 3.—On *Promecoderus* and allied genera (Carabidæ), by T. G. Sloane.

BIOLOGIA CENTRALI-AMERICANA.—Coleoptera, vol. ii, part 1, by D. Sharp; vol. iv, pt. 3, by D. Sharp; vol. vi, p. 1; supplement, by M. Jacoby; vol. vii, by H. S. Gorham. Hymenoptera, vl. ii, by P. Cameron. Lepidoptera-Rhopalocera, vol. ii, by T. D. Godman and O. Salvin. Lepidoptera-Heterocera, by H. Druce.

DREISSIGSTER BERICHT DES NATURWISSENSCHAFTLICHEN VEREINS FUR SCHWABEN UND NEUBURG (a. V.), 1890.—The macrolepidoptera of the vicinity of Kempten and Algaus: A contribution to the Bavarian lepidopterous fauna, by O. von Kolb, 2d edition.

LE NATURALISTE, April 1, 1891.—Diagnoses of new Lepidoptera* by P. Dognin.

MATERIAUX POUR LA FAUNE ENTOMOLOGIQUE DES FLANDRES COLEOPTERES, 4me Centurie, by A. P. de Borre.

MONITORE ZOOLOGICO ITALIANO (Florence), II, No. 3.—On pseudoparasitism of the larva of the Mosquito (*Culex pipiens*), by R. Blanchard.

BIOLOGISCHES CENTRALBLATT, March 15, 1891.—The glands of the first abdominal segment of the insect embryo, by J. Carriere.

NOTES FROM THE LEYDEN MUSEUM, xii, No. 4, October, 1890.—Description of two new species of the genus *Poteriophorus* Sch., of the family Curculionidæ,* by W. Roelofs. Description of a new species of Elateridæ,* by E. Candéze. Three new Malayan Longicorn Coleoptera,* by C. Ritsema Cz.

JOURNAL DE L'ANATOMIE ET DE LA PHYSIOLOGIE NORMALES ET PATHOLOGIQUES DE L'HOMME ET DES ANIMAUX, xxvii, No. 1, Paris, 1891.—Abstract genealogy of Arthropoda, by Dr. L. A. Segond.

BIOLOGISCHES CENTRALBLATT, April 1, 1891.—On the biology of Ants, by C. Emery.

* Contains new species other than North American.

Compte Rendu. Societe Entomologique de Belgique, March 7, 1891.—Description of new Hesperidæ,* by P. Mabille; *Odina*, *Nyctus* n. gen.; *Carystus abalus* n. sp. Merida, Colombia. Descriptions of Coleoptera of the mountains of Kashmir (continued), by L. Fairmaire; *Helcophorus Saloninus* n. gen. Description of a new species of the genus *Lathridius* Herbst., M.-J. Belon. On some Histeridæ collected in Bengal,* by G. Lewis. Dascillidæ and Malacoderma of western Bengal,* by M. J. Bourgeois. Note on the Hemiptera of Bengal,* by L. Lethierry. Entomological miscellanies*: I. Phytophaga of the Isle of Java; II. New, or little-known Phytophaga,* by A. Duvivier; *Sikkimia* n. gen. New Buprestidæ and synonymic remarks,* by C. Kerremans.

Zoologischer Anzeiger, April 6, 1891.—On the development of the central nerve system in *Blatta germanica*, by N. Cholodkovsky. On the development of the wing nerves of butterflies, by Dr. E. Haase.

Atti del reale Istituto Veneto di Scienze, Lettere ed Arti, xxxviii, Venize, 1889–90.—Revision of the Italian Acarofauna: family Ixodini, by G. Canestrini; 3 plates; *Herpetobia* n. gen.

Entomologische Nachrichten, xvii, No. 7, April, 1891.—On the Orthopterous family of the Prochilidæ,* by Dr. F. Karsch; 4 figs., *Simodera*, *Mastighapha*, *Polycleptis* n. gen. On the fauna of Mecklenburg (Coleoptera, Lepidoptera), by H. Brauns. Miscellanea coleopterologica,* by C. Schaufuss.

Il Naturalista Siciliano, x, No. 4 (Palermo), 1891.—Note on the genus *Reicheia* Saulcy, and on a species of *Dichropterus* Ehlers,* by F. Baudi. Luminous insects, by L. Failla-Tedaldi.

Le Naturaliste (Paris), April 15, 1891.—*Colias Wiskotti* Staudinger, and its different varieties, by M. Austaut. Description of new Micro-Lepidoptera,* by P. Chretien.

Termeszetrajzi Fusetek (Budapest), xiii, Nos. 2 and 3, December, 1890.—First addition to the Monographia Chrysididarum Orbis Terrarum universi,* by A. Mocsary; Adelphinæ n. subfam., *Adelphe* n. gen., *A. mexicana* n. sp., Orizaba.

Bulletino della Societa Entomologica Italiana, xxii, Nos. 3 and 4, 1891.—New species of *Culex* from Zanzibar, by Dr. E. Ficalbi. New apparatus for the study of Entomology, by C. Emery. A zoological excursion to the Friulian Lakes, and The marriages of butterflies, by Dr. A. Senna. Diagnoses of new Arthropoda of Sardinia,* by A. Costa. Studies on Messinese Entomology: the Cleonidæ, by F. Vitale. On the odorant organs of the Lepidoptera of the Indo-Australian region after the studies of Dr. Erich Haase, by F. Plateau. Materials for a catalogue of the Italian Tenthredinidæ, by A. Berlese. Genesis of the silk worm, by N. G. Mukerji. On the pretended parasitism of the larva of *Culex pipiens*, by E. Ficalbi. Italian Entomological Literature; Entomological Bibliography, etc.

* Contains new species other than North American.

Sitzungsberichte, d. kais. Akademie der Wissenchaften (Wien) Mathematisch-Naturwissenschaftliche Classe, xcviii, heft 4-7, '89, xcix, heft 1–3, 1890.—Monograph of the digging wasps allied to *Nysson* and *Bembex*,* by A. Handlirsch, parts iv and v, 3 plates; *Bembidula diodonta*, Orizaba, *B. insidiatrix*, Ky., Tex., *B. capnoptera*, id. and Ga., *B. fodiens*, Ga., Tex., *Stenolia scolopacea*, Nev., Cal., *S. tibialis*, id., *Monedula vivida*, Mex., *M. dives*, id., *M. serrata*, Ga., *M. inermis*, Ga., *M. mammillata*, Ga., Va., Da.; *M. minutula*, Tex., *M. pulla*, Cal., new North American species.

Denkschriften of the preceding, lvi, 1889.—Comparative studies on the embryology of insects, and especially Muscidæ, by V. Graber, plates and figures.

Entomologische Nachrichten, xvii, No. 8.—April, 1891.—A new contribution to the knowledge of the indigenous Coleoptera of Bucovina, by C. v. Hormuzaki. On the fauna of Mecklenburg (Hymenoptera), by H. Brauns. Physiological notes (Coleoptera, Hymenoptera), by C. Verhoeff.

Species des Hymenopteres d'Europe et d'Algerie, fondé par Edmond André et continue sous la direction scientifique de Ernest André, 38e fascicule, Gray, April 1, 1891.—Braconidæ (continued), by Rev. T. A. Marshall.

Comte Rendu. Societe Entomologique de Belgique, April 5, 1891. —Descriptions of new Hesperidæ (third part),* by P. Mabille; *Pamphila subsordida*, Honduras; *P. puxillius*, Mexico; *P. asema*, Honduras; *P. paritis*, id. *P. binaria*, Merida; *P. portensis*, Porto Rico; n. sp. from North America. Coleoptera from the interior of China* (seventh part), by L. Fairmaire; *Hypochrus*, *Hecatomnus*, *Cyrebion*, *Ariarathus*, *Lagriogonia*, n. gen. Provisional list of the Coleoptera Heteromera of Belgium, by L. Coucke.

Le Naturaliste (Paris), May 1, 1891.—Insects injurious to the maritime pines imported into the bay of the Somme, by M. Decaux. Diagnoses of some Heterocera from Venezuela, by P. Dognin.

L'Auxiliare de L'Apiculteur (Amiens), April, 1891.—Raising bees under the influence of violet light, by A. Teynac. General notions on the nature and physiology of the Bee, by G. Ulivi.

Doings of Societies.

A Regular meeting of the Entomological Section of the Academy of Natural Sciences was held Wednesday, April 23d, Dr. Horn, Director, presiding. Members present: Martindale, Skinner. Associates: Westcott, Nell, Calvert and Dr. Castle. Letters were read from

* Contains new species other than North American.

Dr. Henri de Sassure and the Imperial Academy Leopoldino-Caroline. Mr. Martindale reported the capture of butterflies and moths. A letter was read from Mr. W. J. Fox, dated Kingston, Jamaica, April 15th, in which he said he and his companion, Mr. C. W. Johnson, were having fair success in collecting insects on the island. They expected to go to Port Antonio and remain there until May 7th, when they would leave for home.

HENRY SKINNER,
Recorder.

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON.—December 4, 1890. The corresponding secretary read a paper by Mr. P. R. Uhler entitled, "Observations on some remarkable forms of Capsidæ," in which were described two new genera, *Heidemannia* and *Peritropius*, represented by one species each, viz., *H. cixiiformis* and *P. saldæformis*. The paper also contained a note on the recent discovery by Mr. Heidemann, in the District, of one of Say's long-lost species, *Cylaphus tenuicornis*.

Mr. Howard read a paper on the "Parasites of the Hemerobiinæ," in which, after dwelling on the numerous protective characters of this subfamily of neuropterous insects, he spoke of the known hymenopterous parasites, and added the encyrtid genus *Isodromus* as the only known primary parasite in the country with the single exception of the egg parasite mentioned by him on page 10, Vol. I, of the society's proceedings. Several secondary parasites were mentioned, and a list of the European parasites and hyper-parasites was given.

Mr. Marlatt presented a note in which he proposed the specific name *unicolor* for a species of *Monoctenus*, the larva of which feeds on the Red Cedar. This Saw-fly had been described by him as *M. juniperi* (see Trans. Kans. Acad. of Sciences, Vol. X, p. 82), which name was preoccupied by an European species of the genus.

Mr. Banks read a paper on *Thalmia parietalis* Hentz, a spider which he had taken in Texas, and which had been lost since Hentz's time. In studying this species in connection with the Pholcidæ, Scytodidæ, Filistatidæ, Urocteridæ, Euyoidæ and Hersilidæ, he reached the conclusion that these spiders are closely related, and ought to be included in one group of family importance for which he proposes Duges' name Micrognathes changed to Micrognathidæ.

Mr. Townsend read some notes on Tachinidæ *sens. lat.*, synonymical and critical, with particular reference to the confusion of the sexes by early describers. A good number of species were noticed and several new ones were described.

Prof. Riley read and commented on letters from Mr. Wm. H. Ashmead, now studying in Berlin, and Mr. S. S. Rathvon, of Lancaster, Pa. He then read a note on an exotic roach (*Ponchlora viridis?*) which he had recently received from Dr. C. F. Gissler, of Brooklyn, N. Y. The remarkable feature was that the roach was certainly viviparous, a habit believed not to have been hitherto recorded of any species of the family Blattidæ. Figures of the parent roach, and of its young greatly enlarged,

were shown. Prof. Riley gave an account also of his additional study of Platypsyllus, in which he mentioned the discovery of a large number of insects, mites and centipedes, which are associated with the beaver either accidentally or as parasites or guests. He also mentioned the undetermined larva described by Mrs. Julia P. Ballard in the October number of ENTOMOLOGICAL NEWS, p. 124, and said that he had no difficulty in recognizing the larva as that of *Citheronia regalis** G. and R. He then called attention to an interesting paper read by Prof. Forbes at the recent meeting of the Association of Economic Entomologists, relating to the periods of transformation, and to the specific characters of Lachnosterna larva. These matters were discussed at considerable length by Prof. Riley, and two new parasites of Lachnosterna were added to those hitherto known.

Mr. Schwarz presented a note "On the feeding habits of Empidæ," in which he described the habits in this regard of a species of *Syneches simplex?* which was very abundant in the mountains at Ft. Pendleton, Md., during the first part of July. Their vertical position in flight and peculiar method of holding their prey and of hanging by one fore-leg while devouring it, were described. He also discussed the recent publication by Ed. Fleutian and Sallé on the Coleoptera from the island of Guadalupe, West Indies (Ann. Soc. Ent. de France, 1889, 1890). The relation of the species enumerated to the fauna of the United States was particularly dwelt upon.

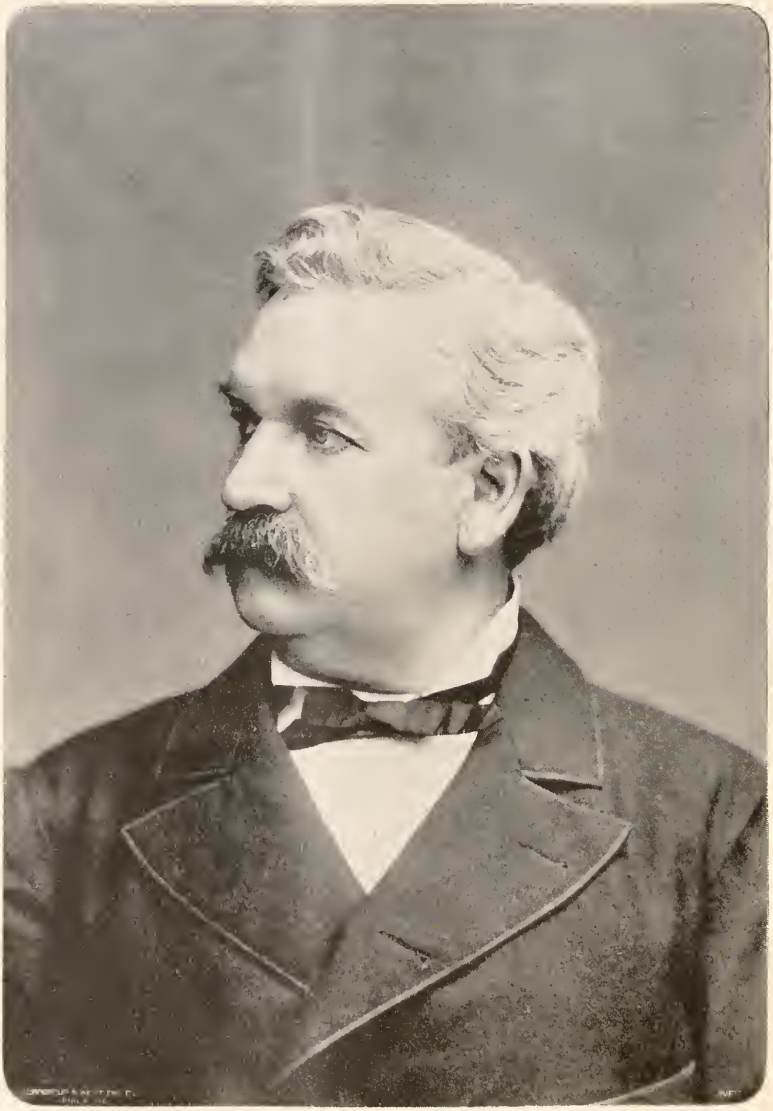
C. L. MARLATT,
Recording Secretary.

OBITUARY

Prof. JOSEPH LEIDY, M.D., died April 30, 1891, aged 68 years. Dr. Leidy always took a warm interest in Entomology, although his writings on the subject were principally connected with the anatomy of insects. Among his very first contributions to science was an article on the Mechanism which Closes the Membranous Wings of the genus *Locusta* (Proc. Acad. Nat. Sci. 1846). Then came the important contributions, "History and Anatomy of the Hemipterous genus *Belostoma* (1847)," and the "Internal Anatomy of *Corydalis cornutus* in its three stages of existence (1848)." He collected micro-lepidoptera in his earlier years, and there are many specimens in the collection of the Entomological Section of the Academy of Natural Sciences, which he presented. Dr. Leidy was elected a member of the American Entomological Society, Feb. 8, 1864.

ENTOMOLOGICAL NEWS for May was mailed April 27, 1891.

C. sepulcralis?—ED.



HENRY EDWARDS.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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HENRY EDWARDS.

HENRY EDWARDS, the well-known entomologist and actor, died in New York, June 9, 1891. He had been ill for a couple of months previous, and the immediate cause of death was heart failure, due to dropsy. Mr. Edwards was an Englishman by birth, and first saw the light in Herefordshire, England, in 1830. He studied law in early life, but a fondness for commercial enterprise led him into a London counting-house, where Walter Montgomery and John L. Toole were fellow clerks. Amateur acting engrafted professional endeavor, and in connection with Montgomery, Mr. Edwards made his first appearance as "Rudolf," in Byron's *Wonder*. In 1853 he bade farewell to the desk and sailed for Melbourne. Under Mr. Doubleday's auspices he had already commenced the pursuit of insect hunting, and had formed the nucleus of a collection destined to grow in a manner of which he had never dreamed. Mr. Edwards was well known as an actor, having been with different companies in Australia, Peru, Panama, California, Boston, etc. In 1879 he was engaged by the late Lester Wallack as a member of his stock company, and

became stage manager of the theatre. After the disbandment of the Wallack company he again went to Australia as a manager for A. M. Palmer's *Little Lord Fauntleroy* organization, returning last year to join Augustin Daly's company. His last appearance was in New York in the part of "Sir Oliver" in *The School for Scandal.*

As an entomologist, Mr. Edwards will best be remembered by his work on the Lepidoptera of California and the Pacific coast, "Studies on North American Aegeridæ," and his last important contribution, "Bibliographical Catalogue of the described Transformations of North American Lepidoptera." He was a member of many scientific societies, and had many friends and correspondents. Three volumes of "Papilio" were edited by him, after which it passed into the hands of Mr. E. M. Aaron. We present a fine portrait of Mr. Edwards, knowing that he had many correspondents that admired and loved him, yet never had the pleasure of seeing his face.

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THROUGH THE PINAL MOUNTAINS.

By H. F. Wickham, Iowa City, Ia.

A week spent in collecting beetles in the Pinal range of mountains proved so enjoyable that the writer feels tempted to write a short account of one of his trips, in order to try to impart to the readers of Ent. News some small part of the pleasure to be gained in the retrospect. In truth, the life of the professional collector in an unsettled or sparsely inhabited country, does not partake to any great extent of the nature of a picnic, as some would have it—hard work, and plenty of it, is his portion when in the field.

The range mentioned may be found on any good map of Arizona, and lies north of Tucson, that part of it which we collected over being included between the Gila and Salt Rivers. To be more exact, our route lay over an old trail from the Gila River, up the cañon of Mineral Creek for some distance, thence across the foot-hills and over the summit of the range, descending on the other side to the mining town of Globe. This course, taking us through several quite distinctly marked belts of vegetation at various altitudes, proved quite productive of insects.

The start was made on horseback, and for a little while most of the attention had to be directed towards the burros, to whose backs the pack had long been a stranger. But with increased sobriety in the burros came increased opportunity for collecting, and we soon had some very pretty things in the cyanide bottle—the first captures being a set of one of our prettiest Chrysomelids, *Urodera crucifera* Lec. They were taken on the wing, having evidently been disturbed by the irresponsible pack animals brushing against the shrubs by the sides of the narrow trail. A few examples of *Megalostomis subfasciata* Lec. were added to our collections in the same way.

Stopping for a mid-day lunch at an abandoned stamp-mill, where a well yielded water enough for the animals, we made a hasty examination of the vicinity with the following results: *Amara californica* and a *Blapstinus*, in great numbers under leaves of Cottonwood, which had drifted into little hollows, a few *Monocrepidius* and an *Esthesopus* or two under boards; one or two examples of *Mycocoryna lineolata* Stal. on weeds with *Exema conspersa*, and an occasional *Euryscopa* or *Pachybrachys*. Not very encouraging yet, but then there were the foot-hills just in front of us, rising one behind the other, each a little higher than the one before it, and covered, as far as we could see, with bear grass and mescal, the latter with its great clusters of yellow, strong-scented flowers lifted high above our heads. On these we hope to find many an interesting insect, and we are not disappointed. First we see one of those curious weevils, *Zygops seminiveus* resting near the end of a mescal leaf, but he loses hold and rolls down the inclined surface until stopped near the axil by the base of the leaf above. As the leaves are very large, stiff, and armed along the edges with stout, curved spines or thorns, it is a delicate piece of work to extricate an insect without lacerating the hand badly, and possibly my method may prove useful to others who have no cutting tool with them but a jack-knife. Cut off the terminal spine first, then run the knife along the full length of the leaf, far enough from the margin to take all the other spines off clean. Now, treat all the other leaves in the same way and the insects are at your mercy. The *Zygops* may be chased from one leaf to another, for they are rather nimble, until in a spot where they can be grasped with the fingers or forceps. Many other beetles are found near the base of the stalk,

either hiding in the axils of the leaves or burrowing in the stalk itself. Among them are the following: *Philophuga amoena*, *Carpophilus floralis*, *Clerus spinolæ*, *Tragidion* sp., *Mecysmus angustus*, *Hymenorus confertus*, *Hyporhagus gilensis* and *Scyphophorus acupunctatus*, the last named boring in and around the bases of the flower-stalk and leaves. At about this altitude we find *Asida parallela* under dead, uprooted plants. The bear-grass furnishes a few examples of *Megalostomis*, and an occasional *Urodera*.

Entering the belt of oak scrub higher up the fauna changes, and the most striking species are small insects living on the leaves, or predaceous; some of them are *Lebia viridis*, *Scymnus marginicollis*, *S. pallens*, *Anthaxia flavimana*, *Pseudebæus bicolor*, *Attalus difficilis*, *Chlamys polycocca*, *Pachybrachys abdominalis*, *Cryptocephalus* n. sp., *Babia tetraspilota*, *Diachus auratus*, *Xanthonia villosula*, *Hemiphrynus intermedius*, *Notoxus bifasciatus*, two or three species of *Apion*, and *Smicronyx seriatus*. These are not all confined exclusively to oak, and some of them probably do not live on it at all, but they may be taken by beating the shrubs, which are in great part some species of oak. On a Leguminous plant (probably a locust) many specimens of a queer ittle Rhynchophore, *Tachygonus centralis*, were captured. The hind legs are strong and saltatorial, though the insect is not as accomplished a jumper as most of our Halticini. At dusk a *Listrochelus* or two, and a single *Polyphylla*, came flying past and were added to the spoils.

After reaching the pine belt proper, there is still another change in the fauna. Here, under logs and slabs, are to be found *Pterostichus lustrans*, *Calathus dubius*, *Platynus brunneomarginatus*, *Chrysomela auripennis*, *Eleodes carbonaria*, *extricata*, *gentilis*, *Embaphion contusum*, *Cœlocnemis punctata*, *Asida macra* and others, while along the little shaded streams *Rhyncheros sanguinipennis* may be seen flying. In and around the piles of slabs left by the lumbermen are numerous lignivorous beetles—*Lucanus mazama*, *Ergates spiculatus*, *Carebara longula*, *Cossonus crenatus*, *Pityophthorus nitidulus*, *Tomicus confusus* and *Hylastes gracilis*. From the small pines and other evergreens a few *Chrysobothris cuprascens* and a *Magdalis* were taken by beating.

Sifting dead leaves in damp places yielded a lot of *Trichopteryx hornii* and *Quedius desertus*. In the little pools were plenty of

Hydroporus vilis and *Agabus lugens*, with occasionally an example of some rarer forms, and on the banks a number of *Bembidium mexicanum*, a not particularly agile species in that climate.

The spot was left with considerable regret, though a scarcity of provisions in the commissary department made this more necessary,—and if the specimens were not so numerous as might be, they were of sufficient interest to more than compensate for any failings in point of numbers.

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Notes on Colias cæsonia.

By Prof. R. R. Rowley, Curryville, Mo.

Although *cæsonia* is the rarest species of *Colias* in Missouri, yet it is fairly common some years, especially in localities where its food-plant is abundant. Toward the latter part of May I have taken numbers of it at red clover blossom in July, and August at thistle and milk-weed blooms, and late in Autumn on the flowers of red and white clover. It is as easily taken as *Philodice* or *Eurytheme*, with both of which it associates at flowers, but unlike the males of them, it never frequents damp places, so far as my observations go.

The flight of this butterfly is not noticeably different from that of our other two species of *Colias*, yet the experienced collector is able to detect it on the wing among numbers of other Coliads, even at a considerable distance; the very broad and intensely black border, outlining the peculiar "dog's head" on the top of the primaries, together with the pointed apex of the same wings, doubtless aiding most in the identification. At rest, the roseate underwinged females of October may be known a hundred yards away in a clover-field. The females of the early and midsummer broods differ from those of late Summer and Autumn in the very pale yellow, almost white, color of the underside of all the wings. In August this pale yellow deepens, and in early September reddish streaks appear along the veins of the hind wings beneath, while in October the entire under surface of the secondaries and the tip of the primaries are heavily streaked or solidly red. The broad outer border of black in some females contains a few, more or less distinct, yellow spots, as we see in the female *Eurytheme* or *Philodice*, but a majority of the individuals entirely want these spots, although the border is much less intense than in the males.

The color of the underside of the wings of the male is much deeper in Autumn than in early Summer, being a light orange, and on the upperside of the primaries the fresh males of October have the black outside border well covered with a beautiful dusting of red scales. In examples of August males but a few scattered (red) scales are to be observed, while a careful examination of many specimens taken in early Summer failed to show to the writer a trace of this Autumn feature. However, hand-bred specimens might show it, but as I have reared only late Summer larvæ, I cannot settle the question. Near the base of the front margin of the hind wing in the male is a large, oblong, orange-colored spot of a mealy appearance. I have noticed the same on the male of *Colias eurydice*.

One female, taken in August several years ago, has the ground color of the upperside of the front wings white, an approach to the albino, while on the upperside of the hind wings of many of the October specimens, the dark streaks and shades from the black border reach almost to the base of the wings.

I made the discovery of the food-plant of *cæsonia* a number of years ago by watching a female flitting about some bushes. The eggs of this butterfly are laid on the underside of the tender end leaflets of *Amorpha fruticosa* or "lead plant." They are spindle-shaped, white or pale yellow, growing darker before hatching. The young larva is yellowish green, swollen slightly at the head and thoracic rings and tapering to the anal extremity. After the last molt many of the larvæ become cross striped, while others are almost unadorned. Of the two kinds of grown larvæ, the one I shall designate No. 1 is dark green, with a lateral yellow or white line along the spiracles. An orange band almost entirely covers the pale yellow line, being broadest and most distinct in the middle of each segment. A bluish tinge above and below the stripe is usually noticeable.

The underside of the body is paler than above. On rings 3 and 4 is a black dot, each, just above the stripe. Head green, and covered with short hair. Feet green; whole body covered thickly with small, raised black points. Each ring many wrinkled. Length of mature larva 1¼ to 1½ inches.

The larva No. 2 differs from No. 1 in the cross-bands of black and bright yellow on each segment, reaching the yellow longitudinal line below, and giving the larva a handsome striped appear-

ance. The black cross-bands are either entire or broken into four parts, following the yellow bands as shades to each. Some larvæ have the yellow without the black bands, while a few have the black without the yellow. The pupa is three-fourths of an inch long, plain green, with a pale lateral line. A row of small, dark dots along each side, on the back, and a submarginal row on the wing-cases. Length of pupal period in August is from four to six days. Later in the year it is much longer. Wing-sheaths of pupa humped. Two days before the pupa gives the imago the wings show plainly in miniature, and the dark border of the mature butterfly is here represented by a bright red band, the male being readily distinguished from the female.

I doubt if this species feeds on any other plant than *Amorpha*, as I have never observed the female depositing her eggs on anything else, though many other Leguminous herbs, shrubs and trees grow here.

Even the larger and older shrubs of *Amorpha* do not seem to be inviting to the female, and she frequents fields where the brush has been newly cut away from the banks of brooks, and fresh, tender shoots offer a supply of suitable food for young larvæ. Here she deposits her eggs in great numbers, and here the collector finds a supply of larvæ. Besides *cæsonia*, the caterpillars of *Eudamus tityrus*, *Hyperchiria io;* an undetermined *Limacodes* and another moth feed on *Amorpha fruticosa*, a very abundant shrub along the prairie branches near Curryville.

———o———

Lachnosterna insperata and fraterna.

By John Hamilton, Allegheny, Pa.

Lachnosterna insperata *Smith.*—The distribution of this species is widely extended; examples are in my collection from Sudbury, Ontario; Buffalo, N. Y.; and from here, as likewise from various places in western Pennsylvania and eastern Ohio. Prof. Smith has it from New Jersey and from Illinois. The ventral characters of the male are variable; the form of the ridge on the penultimate ventral segment of Mr. Smith's type seems to be an extreme in one direction, varying in a large majority of the individuals to that of *dubia*, and an example occasionally occurs which inosculates so closely with some *fuscæ* as not to be sepa-

rable by this character. The typical *insperata* has been in my collection from its first description, but the great mass of the examples were referred to *dubia* without a suspicion. There are before me now forty male and twenty female *insperata*, and ten male and sixteen female *dubia*. By an examination of this series it is easy to see the males of these two species cannot in every case be separated by the ventral characters—that is to say, the writer cannot do it. The genital organs are usually sufficiently distinctive, but to examine every specimen in this way is laborious. The claspers in this species vary greatly in the development of some of the parts, but in all cases observed always retain the same pattern. As to the females, the ventral characters appear to be identical; the last ventral in each is deeply arcuately emarginate, differing from that of *fusca*, which is either transverse at the apex, or scarcely narrowed at its middle; the genitalia, while morphologically different, are yet so similar as to be of little practical avail to the collector. The two species are, however, readily separated by a character of *insperata* not heretofore observed, or at least not recorded (unless *insperata* should prove to be a synonym), namely, the hairiness of the head.

In the males there is conspicuous tuft of long yellow hairs on the front near each eye connected by a line of shorter hairs, which appear to be somewhat deciduous, and in some old examples are nearly lost. In the females the tufts of hairs near the eyes are usually shorter, and in many old specimens may, without care, escape observation, while the connecting line is scarcely present, except in immature or very recent examples.

The females were obtained years ago from two exchanges, labeled *cephalica* Lec., a species described as having 10-jointed antennæ and a hairy head, but placed by Dr. Horn in his recent monograph as a race of *fusca*. As *insperata* is quite variable in the ventral characters of the male as stated above, it seems probable it may be Dr. LeConte's *cephalica*, a matter that might easily be settled by examining the genitalia of the type, a male, which probably still exists in Dr. LeConte's collection. In case they prove to be different, *cephalica* will likely be rehabilitated as a species and grouped with *insperata*.

L. fraterna *Harris.*—This species is abundant here, when its locality is found; last season I took near two hundred examples in a couple of nights' collecting. The figure given by Professor

Smith in his plates of genitalia as the female of this species, is that of *nova* Smith; that of *fraterna* is still unfigured. The pubic process might be likened to a miniature spoon truncated near the tip with the handle much curved and shortly furcate at the end.

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ELEMENTARY ENTOMOLOGY.

The young of butterflies and moths are called caterpillars, larvæ or worms. Lepidopterous insects can only be said to grow in the caterpillar condition, and little butterflies never grow to be big ones, as is popularly supposed. When the young caterpillar has matured in the egg it eats its way through the shell and devours more or less of the remaining shell; some species eat a hole only large enough to let them out, and others nearly the entire shell. Some are very slow in eating their way out, sometimes occupying a day or two, as in some of the Hesperidæ. The newly-born caterpillar varies in size from a very minute object to about one-quarter inch in length, according to the size of the species. They are very voracious, and grow rapidly, changing their skins or moulting to accommodate their increase in size. They are elongated, cylindrical, worm-like; some are naked and others covered with hair. They are separable into thirteen joints or segments, including the head. They have three pairs of short legs, a pair on the second, third and fourth segments respectively, and on joints seven, eight, nine, ten and thirteen have each a pair of membranous legs armed with a circle of minute hooks which enables them to hold on to objects. In certain large species these are wrapped entirely around a small twig or branch of the tree on which they feed. These last legs disappear when the larva changes to a chrysalis. They breathe by means of stigmata or spiracles, which are breathing holes situated on each side of the body, which communicate with the respiratory system. When, after feeding some days, the larva gets too big for his skin he seeks a convenient place and spins a little web, in which he entangles his feet and remains quiet for a short period, and then crawls out of the old skin and has an entirely new suit of clothes, often varying greatly from the old one. This he does a varying number of times according to the species, but it is usually four or five, but may be as high as ten. Some of the species of *Pam-*

phila undergo this change in a little tube of silk, which they spin for the purpose. When the caterpillar reaches full growth it seeks a place in which to change into a chrysalis or pupa. Some species change to a naked chrysalis; some spin a cocoon inside of leaves or sticks; others make merely a cocoon in which to transform, and quite a number enter the ground and wriggle around until they harden the sides of their grave or tomb until it is virtually a cocoon in the ground.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

EXTRAS of Plate VI (portrait of Henry Edwards), on heavy paper suitable for framing, can be supplied at twenty-five cents each. Send order to Treasurer, E. T. Cresson, P. O. Box 1577, Philadelphia, Pa.

THE new Check List of North American Lepidoptera by Prof. J. B. Smith, will soon be completed. This includes Diurnals and Nocturnals. The price will be $1.00. Send in your order early to E. T. Cresson, Treasurer. See notice on second page of cover.

INTERNAL REVENUE PROBLEMS.—Truth is often much funnier as well as stranger than fiction. An important public officer of Duisberg, in Germany, is an ardent entomologist, and made a costly purchase of rare butterflies in Holland. The collection arrived in due time at the Duisberg custom-house, where the inspectors were at a loss to know whether the insects were dutiable or not. They finally came to the conclusion that, inasmuch as they had wings, they must be classed as poultry, and much explanation and expostulation were required before they could be induced to regard them in any other light.—*Clipping.*

THE collection of insects made by the late Henry Edwards, consisting of about 300,000 specimens of all orders, and well represented in large numbers of individuals and long suites of specimens from all parts of the world, is for sale. It is particularly rich in Pacific coast of North America species. A large number of Lepidoptera from this region were described by Mr. Edwards, and his types are in the collection. Institutions or private persons wishing to purchase will please address Mrs. Henry Edwards, 185 E. 116 Street, New York, N. Y.

On May 29th, near midnight, with temperature at 50° Fahr. at Franconia, N. H., Mrs. A. T. Slosson took another fine ♀ specimen of *Phragmatobia assimilans*, var. *franconia* Slosson.

The Entomological Society of Belgium, at its meeting of May 2, 1891, discussed the question of the value of types in Entomology. The majority of the members present expressed their ideas on the subject. The result of the discussion was that *only those specimens should be considered as types of a species which have served to fix the description.* All the individuals which an entomologist afterwards recognizes as belonging to a species established by him are not veritable types; they ought to have in a collection only the note *compared with the type by the author* with the date of the determination.—From the Compte Rendu. of the Society for May 2, 1891, p. ccxlvi.

The annual field-meeting of entomologists, under the auspices of the societies of Philadelphia, Brooklyn and Newark, was held on July 4th at Jamesburg, N. J., which is situated near Monmouth Junction on the Amboy Division of the Pennsylvania Railroad. The societies represented were the Feldman Collecting Social, American Entomological Society and Entomological Section of the Academy of Natural Sciences, all of Philadelphia; the Brooklyn Entomological Society and the Newark Entomological Society. It was feared that the hail storm of the previous evening would somewhat interfere with the pleasures of the day, but the bright sunshine of the early morning brought sunshine into the hearts of the ardent collectors, for Jamesburg is well known to be a favorite collecting-ground. The party was met at the Jamesburg Station by conveyances and taken about a mile to a beautiful grove, bordering the cranberry meadows, where, after a photographer had secured a picture of the entire party, the day was spent in collecting. Ample lunch was provided and eaten under the shade of the trees in the pretty grove. About forty persons were present, among whom were H. Wenzel, P. Laurent, Dr. Castle, Schmitz, Trescher, Hoyer, E. Wenzel, C. Boerner, I. C. Martindale, Liebeck, Fox, C. W. Johnson, P. Nell and H. Skinner, of Philadelphia; Jas. S. Johnson, of Frankford, Phila.; and Messrs. Machesney, Angell, Loeffler, Angelman, Sherman, Thompson, Ottolengui, Leng, Merkel, Roberts, Pearsall, Davis, Baier, Hess, Dietz, Sieb and Julich, of New York, Newark and Brooklyn. The party was looked after by Prof. J. B. Smith, of New Brunswick, State Entomologist. The second annual meeting was a great success, and it is hoped that many more may follow.—I. C. Martindale.

The following are clipped from the daily papers:

How two insects talked.—A Parisian chemist has caught two little insects in the act of nocturnal "spirit" rapping. They were found about four inches apart on opposite sides of a piece of heavy wrapping paper. Each tapped loudly with the head about six strokes a second, one answering as the other finished.

AFRICAN travelers tell of a "delicious soup" of beetles and mushrooms made by the natives of that remarkable country.

THE fly is a quaint humorist. He can tickle a man in more places at once than the best paid funny man going.

Now fares it sadly with the man
Whose soul doth patience lack,
When he to smite fugacious flies
Himself doth fiercely whack.

A PROFESSOR at Ann Arbor was discussing the process of fertilizing plants by means of insects carrying the pollen from one plant to another, and told how old maids were the ultimate cause of it all. The bumble-bees carry the pollen; the field-mice eat the bumble-bees; therefore, the more field-mice the fewer the bumble-bees and the less pollen and variation of plants. But cats devour field-mice, and old maids protect cats. Therefore, the more old maids the more cats, the fewer field-mice, the more bees. Hence, old maids are the cause of variety in plants. Thereupon a sophomore, with a single eyeglass, an English umbrella, a box-coat, with his trousers rolled up at the bottom, arose and asked: "I sa-a-y, Professah, what is the cause—ah—of old maids, don't you know?" "Perhaps Miss Jones can tell you," suggested the Professor. "Dudes!" said Miss Jones, sharply, and without a moment's hesitation.

A YOUNG man camping in the Sierras discovered and captured a butterfly of an unknown species. He sent it to the Smithsonian Institution at Washington, and received therefor a check for fifteen hundred dollars, with the request to make careful search for other moths of the same kind. It was an individual of a fossil species, supposed to be extinct, and great was the excitement among the scientists at the discovery that one of the race had been recently alive. Although diligent search has been made by men paid for the service, no other specimen has been found.

"WILL you walk into my parlor?" said the spider to the fly.
Well, hardly," said the insect, as he winked the other eye.
"Your parlor has an entrance, but of exits it is shy,
So I'll stay outside in safety and remain a little fly."

"AN INNOVATION."—That was a great jewel Mrs. De Jones had on last night. "What was it?" "It was a live brazilian beetle with a big diamond strapped on its back. It was trained to fly around her neck, thus giving the effect of a diamond necklace."

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

ANNALS AND MAGAZINE OF NATURAL HISTORY, May, 1891.—Descriptions of new genera and species of Pyralidæ contained in the British Museum collection, by W. Warren. Descriptions of new species of the coleopterous genus *Oides*, by C. J. Gahan. Description of a new genus for the reception of the North American moths hitherto referred to *Telesilla* of Herrich-Schäffer, by A. G. Butler.

CONTRIBUTIONS TOWARD A MONOGRAPH OF THE NOCTUIDÆ OF TEMPERATE NORTH AMERICA.—A revision of the species of *Hadena* referable to *Xylophasia* and *Luperina*, by J. B. Smith.—From Proc. U. S. National Museum, vol. xiii, pp. 407–447.

THE TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON for the year 1891, pt. 2, with 8 plates.—A monograph of the Lycænid genus *Hypochrysops*, with descriptions of new species, by Hamilton H. Druce. Notes on the Lepidoptera collected in Madeira, by the late T. Vernon Wollaston, by George T. Baker. Additions to the Carabideous fauna of Mexico with remarks on some of the species previously recorded, H. W. Bates. On the genus *Xanthospilopteryx* Wallengren, by W. F. Kirby. The Rhynchophorous Coleoptera of Japan. Pt. 2, Apionidæ and Anthribidæ, by Dr. David Sharp. The life-history of the Hessian Fly, *Cecidomyia destructor* Say, by Fred. Enock. Mimetic resemblances between species of the coleopterous genera *Lena* and *Diabrotica*, by C. J. Gahan. A list of the Heteromerous Coleoptera collected by J. J. Walker in the region of the Straits of Gibralter, with descriptions of four new species, by G. C. Champion.

THIRD ANNUAL REPORT OF THE WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION.—This contains a valuable report on noxious and beneficial insects of thirty-five pages with two plates, by A. D. Hopkins, entomologist to the station.

THE BRITISH NOCTUÆ AND THEIR VARIETIES, by J. W. Tutt, F. E. S., vol. i, May, 1891, with catalogue of the subclasses, families, genera, species, varieties and principal subvarieties. This is a work of 164 pages by one who has made a study of the causes of variation in Lepidoptera, a subject which of late has received considerable attention, especially in England. The literature of varieties had been greatly scattered through numerous periodicals and other works published in different countries, and in this volume there are collected together for ready reference by the student. A careful study and comparison of the different forms of a species can't fail to be very useful in determining their exact limitations and thus help to solve the problem as to what shall be considered a species. The subject of variation is rapidly acquiring a literature of its own, and the author of this work is also the editor of a journal entitled, "The Entomologist's Record and Journal of Variation." Mr. Tutt is anxious to correspond with any one in this country interested in the subject.

"The Observer," devoted to Natural History, Popular Science, Education and General Literature, edited by E. F. Bigelow, Portland, Ct. This interesting journal has a department devoted to Entomology under A. W. Pearson, of Norwich, Conn. Vol. ii, No. 7, contains a table of Geometridæ for determining the species, An editorial outing, an enemy of mosquitos. The price is fifty cents per annum.

Manual of North American Butterflies, by C. J. Maynard (De Wolfe, Fiske & Co., Boston, 1891). This work brings together for the first time descriptions of all the butterflies which occur in America North of Mexico. The literature on Lepidoptera is so scattered that only those who have access to large natural history libraries, or are happy enough to own an extensive library of their own, can hope to identify their specimens for themselves, and this book is intended for those who do not have these facilities. All the species listed by Mr. W. H. Edwards in his catalogue of 1884 are described, and some of those described since are noted in an appendix. There are ten colored plates with about sixty figures and numerous wood-cuts of about two hundred and fifty species illustrating some peculiar character by which the insect may be known. The scheme of the work is a very good one, and it can't fail to be useful, although there are certain faults. Comparative descriptions are only of value when specimens are at hand, and it would be exceedingly difficult to identify from many of the descriptions without a large amount of material, which the beginner does not have. A number of errors have crept in, the most noticeable of which is on plate 5, fig. 1, which represents the underside of *Synchlœ janais* of Drury and not *adjutrix*.

Destructive Locusts.—A popular consideration of a few of the more injurious locusts (or "grasshoppers") of the United States, together with the best means of destroying them, by C. V. Riley, U. S. Dep't Agric., Div. Ent., Bulletin No. 25.

Report of the Entomologist for 1890, by C. V. Riley, U. S. Dep't Agric., 26 pages, 7 plates. Contains articles on noxious insects, with remedies against them.

Central Experimental Farm, Department of Agriculture, Ottawa, Canada, Bulletin No. 11, May, 1891.—Recommendations for the prevention of damage by some common insects of the farm, the orchard and the garden, by James Fletcher, entomologist and botanist to Dominion Experimental Farms.

Notes on some Noctuidæ, with descriptions of new genera and species, by John B. Smith, pp. 103–135. From Trans. Am. Ent. Soc. for 1891.

Bulletin 82, New Jersey Agricultural Experiment Station, by Prof. J. B. Smith. Experiments for the destruction of the Rose-chafer, or Rosebug.

Revision of *Homohadena* Grote, by Prof. John B. Smith. From Proc. U. S. National Museum, vol. xxiii, pp. 397–405.

Host-plant List of North American Aphididæ, by T. A. Williams. Special Bulletin No. 1. University of Nebraska, Dep't of Entomology.

An Undescribed Larva from Mammoth Cave, by H. Garman. From Bulletin of the Essex Institute, vol. xxiii, 1891.

U. S. Department Agriculture, Division of Entomology, Bull. 23.—Reports and observations in the practical work of the Division made under the direction of the entomologist. Contains articles on injurious insects, by Lawrence Bruner, D. W. Coquillett, Albert Koebele, Mary E. Murtfeldt, Herbert Osborn and F. M. Webster.

Notes on North American Myriapoda of the Family Geophilidæ, with descriptions of three genera, by O. F. Cook and G. N. Collins, of Syracuse, N. Y. From Proc. U. S. National Museum, vol. xxiii, pages 383–396.

Collecting and Preserving Insects, by Dr. W. J. Holland, 33 pp. with a number of plates and cuts. This comprises the article on insects in "Taxidermy and Zoological Collecting," by W. T. Hornaday. This article is by a practical entomologist, and will be a useful guide to the subject. Such articles are generally written by Taxidermists who know little about the subject.

Atti della Societa Veneto-Trentina di Scienze Naturali residente in Padova, xii, fasc. 1, 1891.—Contribution to the embryology of the Acari, by Dr. E. Sicher.

Sitzungsberichte d. konig. bohmischen Gesellschaft der Wissenschaften. Mathematisch-Naturwissenschaftliche Classe, '90, II.—The metamorphic stages of *Oxyethira costalis* Curt., and a paper on Bohemian Trichoptera,* by F. Klapalek, plates; Bohemian Thysanura,* by J. Uzel.

Journal de l'Anatomie et de la Physiologie, etc., Paris, xxvii, No. 2, 1891.—Brief genealogy of the Arthropoda: Determination of the typical forms (continued), by Dr. L. A. Segond.

Biologisches Centralblatt (Erlangen), May 1, 1891.—On the embryonal plan of the blood and fat tissues of insects, and remarks on J. Carriere's paper on "The Glands of the first abdominal segment of the insect embryo," by V. Graber.—July 1, 1891. Preliminary remarks on the "International Relations" of Ant guests, by E. Wasmann.

Zoologischer Anzeiger, May 11 and 25, 1891.—On the extremities in the embryos of Arachnids and Insects, by Dr. A. Jaworowski.

Revue des Sciences Naturelles de l'Ouest (Paris), No. 2, April, 1891.—The sense of sight in Arthropods, by Dr. A. Peytoureau.

* Contains new species other than North American.

Le Naturaliste (Paris), May 15, 1891, etc.--New Lepidoptera,* by P. Dognin; *Gaujonia* n. gen.—June 1. The nymph of *Telephorus rufipes*, by L. Planet; figs.

Entomologische Nachrichten, xvii, No. 9, May, 1891.—*Brachycryptus* n. gen. Cistelidæ near *Omophlus*,* and A new *Glaphyrus* from Tripoli,* by G. Quedenfeldt. Triphonid studies,* by Dr. Kriechbaumer. A new contribution to the knowledge of the indigenous Coleoptera in Bucovina, by C. V. Hormuzaki.—No. 10, May: *Acronycta* var. *Bryophiloides*, a new variety of *A. strigosa* F.,* by C. V. Hormuzaki. A new Crabronid,* by C. Verhoeff.—No. 11, June: *Rhizotrogus limbatipennis* Villa = *furvus* Germar, by Dr. G. Kraatz. Cryptid studies,* by Dr. Kriechbaumer. A later contribution to the knowledge of indigenous Coleoptera of Bucovina, by C. V. Hormuzaki.—No. 12, June: Diptera from the vicinity of Treparewo, by B. Fedtschenko. Two new species of *Macrophya*, by Dr. Kriechbaumer.—No. 13 July: On *Dorcadion lævе* Fald., by K. M. Heller. Diptera from the vicinity of Treparewo, by B. Fedtschenko.—No. 14, July: On *Orellia schineri* Lw., by V. v. Roder. On *Polyphylla*, *Anoxia* and *Cyphonotus;* Three new species of *Rhizotrogus* from the Orient;* On *Rhizotrogus ater*, *fuscus*, *furvus* and *limbatipennis*, by E. Brenske. The Zoocecidæ of Lorraine, by S. S. Kieffer.

Compte Rendu. Societe Entomologique de Belgique May 2, 1891.—Causeries Odonatologiques, No. 4: the genera *Zygonyx* Selys and *Schizonyx* Karsch, by E. de Selys-Longchamps. Description of a new genus of Elateridæ,* by E. Fletiaux; *Globothorax*. Additions to the "Catalogue Methodique des Elaterides connus en 1890, par E. Candéze," by E. Bergroth. Clavicorns from Western Bengal,* by A. Grouvelle. Melanges Entomologiques, III, Diagnoses of Madagascan Phytophaga,* by A. Duvivier. Second note on some Coleoptera Heteromera of Belgium, by L. Coucke.

Zoologische Jahrbucher, v, No. 5, Jena, 1891.—Contributions to the biology of the solitary flower wasps (Apidæ), by H. Friese; 1 plate.

Entomologiske Meddelser, ii, Nos. 5, 6, Copenhagen, '90.—*Phlæphthorus rhododactylus* Marsh, by E. A. Lovendal, figs. Synonymic remarks, etc., on Danish Tomicini, ibid. *Aenigmatias blattoides*,* a new apterous Dipter, by F. Meinert; 1 plate. Catalogue of Danish Coleoptera: Staphylinidæ, id. New Danish Coleoptera and Hemiptera, by W. Schlick. New Danish Lepidoptera, by H. P. Duurloo.

Abhandlungen, Naturwissenschaftlichen Verein zu Bremen, xii, No. 1, 1891.—Contributions to the fauna of the island of Spiekerooge, by S. A. Poppe. Biological observations on the relations between flowers and insects in the East Frisian Island of Norderney, by C. Verhoeff. First contribution to the insect fauna of the North Sea island of Juist, by Dr. Alfken.

* Contains new species other than North American.

Bulletin de la Societe Philomathique de Paris, 3e serie, iii, No. 1, 1891.—On the locomotion of Arthropods, and Note on the lyriform organs of Arachnids, by P. Gaubert.

Archiv fur Naturgeschichte, lvii, I, No. 1, Berlin, 1891.—On the origin and cause of the absence of wings in the females of many Lepidoptera, by L. Knatz; 1 plate.

Bulletin de la Societe Linneenne de Normandie, 4e serie, v, 1. Caen, 1891.—Note on *Phalena hyemata*, parasite on the apple tree, by Drs. Huet and Louise.

Monitore Zoologico Italiano, ii, 5, Florence, 1891.—Anatomico-physiological note on some Ixodini, by A. Batelli.

Mittheilungen aus dem Naturhistorischen Museum in Hamburg, viii, 1891.—Revision of the scorpions, I. Fam. Androctonidæ, by Dr. K Kraepelin; 2 plates; new genera and species.

Archives de Biologie, x, 4, Paris, etc., 1891.—Researches on the walk of insects and Arachnids, by J. Demoor; 3 plates.

Compte Rendu. L'Academie des Sciences (Paris), July 6, 1891.—The Flight of Insects studied by Photochronography, by M. Marey.

Stavanger Museum, Aarsberetning for 1890, Stavanger, 1891 (?).—Contribution to the knowledge of Norse Coleopterous Fauna,* by T. Helliesen. List of Coleoptera (Carnivori, Palpicornes and Amphibii) found near Jaederen in 1890, id.

Verhandlungen des Naturhistorischen Vereins der preussischen Rheinlande, Westfalens und des Reg.-Bezirk Osnabruck, xlvii, Bonn, 1890.—The gall-flies and galls of Siegerland,* by E. H. Rubsaamen; 4 plates. A fourth German species of *Atypus*, by Dr. P. Bertkau.

Sobre la Carpocapsa saltitans Westw. y la Grapholita motrix Berg. n. sp.* por el Dr. Carlos Berg.—Extract from Anales Sociedad Cientifica Argentina xxxi, 1891.

Revue Scientifique du Bourbonnais, 4e, Annee, No. 6, June, 1891. —The Orthoptera of the Allier, by E. Olivier.

Bolletino dei Musei di Zoologia ed Anatomia comparata d. R. Universita di Torino, Nos. 94, 97, 102, 1891.—New species of Diptera from the Zoological Museum of Turin,* by Dr. E. Giglio-Tos; No. 102 contains twelve new Mexican species of various genera.

Mittheilungen der Naturforschenden Gesellschaft in Bern, Nos. 1244–1264, 1891.—Contribution to the Tipulid Fauna of Switzerland,* by Dr. E. Bergroth.

Utilite des Abeilles en Horticulture; par V. Brandicourt, Amiens, 1891.

* Contains new species other than North American.

COMPTE RENDU. SOCIETE DE BIOLOGIE (Paris), June 20, 1891.—On the abdominal nerve chain of *Melolontha vulgaris*, by A. Binet. Fungi parasitic on *Acridium*, by J. K. d'Herculais, C. Langlois, A. Girard. July 9: The disposition of the connectives in sub-intestinal nerve chain of *Melolontha vulgaris*, by A. Binet.

ARCHIVES ITALIENNES DE BIOLOGIE, xv, 2, Turin, 1891.—Spermatogenesis of *Bombyx mori*, by E. Verson. The glandular hypostigmatic cells in *Bombyx mori*, by E. Verson and E. Bisson.

REVUE BIOLOGIQUE DU NORD DE LA FRANCE, iii, 10, July, 1891.—The wax of Bees, by A. and P. Buisine.

IL NATURALISTA SICILIANO (Palermo), x, 6, 7, March, April, 1891.—Two new Hymenoptera from Sicily, by T. De-Stefani. Catalogue of the Coleoptera of Sicily, by E. Ragusa.

VERHANDLUNGEN DES NATURFORSCHENDEN VEREINES IN BRUNN, xxviii, 1890.—Identification table of the Hydrophilidæ of Europe, West Asia and North Africa, by A. Kuwert.

JENAISCHE ZEITSCHRIFT FUR WISSENSCHAFT, xxv, 3, 4, Jena, 1891.—Honeydew: A biological study on plants and plant-lice, by Dr. M. Büsgen; 2 plates.

ARBEITEN AUS DEM ZOOLOGISCH-ZOOTOMISCHEN INSTITUT IN WURZBURG, x, 1, Wiesbaden, 1891.—On the genital characters of insects, by F. Leydig; 2 figures.

ARBEITEN AUS DEM ZOOLOGISCHEN INSTITUTE DER UNIVERSITAT WIEN UND DER ZOOLOGISCHEN STATION IN TRIEST, ix, 2, Wien, 1891.—The coxal glands of the Arachnoidea, by R. Sturany; 2 plates.

BIBLIOTHECA ZOOLOGICA II: Verzeichniss der Schriften über Zoologie welche in den periodischen Werken enthalten und vom Jahre, 1861–1880, selbstandig erschienen sind, . . . von Dr. O. Taschenberg, 9te lieferung signatur 321–360, Leipzig, Engelmann, 1891.—A list of the writings on Zoology from 1861 to 1880, which have appeared separately or in periodical journals. This lieferung finishes the insects (Coleoptera), includes the Molluscoidea, and begins the Mollusca.

MATERIAUX POUR LA FAUNE ENTOMOLOGIQUE DU LIMBOURG. COLEOPTERES, 4me Centurie, par A. P. de Borre, Hasselt, 1891.

Doings of Societies.

A REGULAR STATED MEETING OF THE ENTOMOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES was held at the Hall, S. W. cor. Nineteenth and Race Streets, May 28, 1891, Dr. Horn, Director, in the chair. Members present: Cresson, Martindale, Laurent, Skinner, Bullock and Ridings; Associates: Seeber, Johnson, Fox, Westcott and Nell; Mr. Bird, of Rye, N. Y., visitor. A paper entitled, "Revision of the genera and

species of Anthonomini of Boreal America," by W. G. Dietz, M.D., was presented for publication. Mr. Martindale stated that five volumes of Kirby's Catalogue of Heterocera were in press. Dr. Skinner spoke of the importance of the work, and said it would greatly stimulate the study of the moths. Mr. Martindale also discussed the question of the proper classification of Diurnal Lepidoptera, and mentioned some of the classifications now in use. Dr. Horn said that a working collection should be arranged for convenience of study. Dr. Skinner exhibited a catérpillar and chrysalis of *Danais archippus;* the former transformed into a chrysalis during the meeting. Mr. C. W. Johnson, exhibited the Diptera which he had recently collected in Jamaica. He had found different species represented on the north and south sides of the island. Some of the species captured he had also taken in Florida. Insect life was scarce at Kingston on account of the dry weather, but insects were more abundant at Port Antonio, where the rainfall is usually greater. The natives stated that collecting was best during the month of July. He took about ninety-seven species, which were exhibited. Mr. W. J. Fox exhibited the Hymenoptera collected in Jamaica; they numbered ninety-one species, fifteen of which were probably new to science. One torn specimen of *Papilio homerus* had been seen. Mr. Martindale read an extract from a paper by Dr. Leidy, published some years ago, on "Insects Injurious to Shade Trees." He also spoke of the scarcity of insects at the present time. Dr. Horn stated that he was about finishing his paper on *Agrilus.*—Meeting held June 8th, Dr. Horn presiding. Members present: Ridings, Bullock, Blake, Martindale, Skinner; Associates: Calvert, Fox, Westcott, Johnson, Nell. A paper on Jamaica Hymenoptera by Wm. J. Fox, was presented for publfcation. Dr. Horn stated, in regard to his paper on *Agrilus*, that he had about decided to discard a certain species from the list, specimens of which were in the collection of the Society and his own received from the late Mr. Wilt. Having received the same species from Dr. Riley, with the authentic label Florida, it must be included. He had at first thought the species, from its appearance, was probably exotic. He also mentioned seeing in Mr. Seeber's collection a specimen of *Agrilus walsinghami* labeled Texas, and doubted the locality being correct, as the home of the species was in the Northwest. He had recently received specimens from some of the intermediate points, thus showing that the southern locality was probably correct. Mr. Martindale spoke of a note in the June number of the NEWS, p. 122, that *Psyche confederata* had been found in abundance at Columbus, Ohio, by Prof. Kellicott. Mr. M. had found it in some numbers back of George's Hill in Fairmount Park, Philadelphia.

HENRY SKINNER, *Recorder.*

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON.—January 8, 1891. The annual meeting of the Society was held at the residence of Prof. C. V. Riley, and the officers for the past year were re-elected, as follows: President, George Marx; Vice-Presidents, C. V. Riley and L. O. Howard; Corresponding Secretary, C. H. Tyler Townsend; Recording Secre-

tary, C. L. Marlatt; Treasurer, B. P. Mann; Executive Committee, E. A. Schwarz, Otto Heidemann, W. H. Fox. The President, Dr. Marx, delivered an address on "The Spiders of the District of Columbia," in which he discussed at length the value of local lists as a means of forming a comprehensive knowledge of the fauna of a country. He referred to the somewhat scanty literature in this country of this nature as compared with that of Europe, giving also a bibliography of the more important writings on Araneæ of both this country and Europe, and concluded with a list of the spiders found to occur in the District.

The address was discussed by Messrs. Riley, Fernow, Marx, Schwarz, Smith, Dodge, Banks and others.

The thanks of the Society was voted Dr. Marx for his address.

February 5, 1891.—Mr. Schwarz called attention to certain Micro-lepidoptera which bred in the fruit of *Solanum carolinense*, stating that he had bred *Gelechia beneficentella*, and referred to the fact that no similar insects were known to breed in the fruit of cultivated potato.

Dr. Marx spoke of the spiders of the genus *Pholcus*, of which nine species occur in this country as against one or two found in Europe. He exhibited specimens of the American species.

Mr. Schwarz exhibited specimens of *Casnonia ludoviciana* found this Winter in great abundance near Washington, D. C., and remarked on the distribution and habits of this insect.

Prof. Riley laid before the Society an interesting card which he had recently received from Mr. McLachlan referring to the *Plepharocerid* larvæ mentioned at the previous meeting of the Society. Mr. McLachlan fully confirmed Prof. Riley's reference of the larvæ in question.

Mr. Townsend read a paper on a remarkable new Hippoboscid received from Dr. Alfredo Duges, Guanajuato, Mexico, which had been taken on a bat. It was described as *Trichobius* n. gen. *dugesii* n. sp.

Mr. Townsend also presented a paper on a Muscid, bred from swine dung, which he described, in its larval and imago stages, as *Cleigastra suisterei* n. sp. This case of breeding had shown a larval hibernation, and Mr. Townsend expressed the belief that in more northern latitudes most coprophagus Diptera (*Hæmatobia*, *Lucilia*, etc.) winter equally as larvæ or pupæ, and only exceptionally as perfect flies.

These papers were discussed by Messrs. Riley, Fox, Banks, Schwarz, Marlatt and Townsend.

C. L. MARLATT, *Recording Secretary*.

ENTOMOLOGICAL NEWS for June was mailed May 29, 1891.

CALIGO ATREUS ("OWL BUTTERFLY.")

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. II. OCTOBER, 1891. No. 8.

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Plate VII represents the so-called "Owl Butterfly." This individual specimen is *Caligo atreus*, and flies in America in the Equatorial region. The underside photographed, looks very much like an owl, the ocelli representing the eyes, and the various shadings of brown representing the feathers. Insect collectors frequently represent the body of the owl by other lepidopterous insects, or in some cases brilliant Coleoptera, and use a species of *Caligo* for the head, thus making a pleasing picture. There are about twenty-five species in the genus, and they are all fine, large insects, some of them very beautiful, but not so brilliantly colored as the allied genus *Morpho*. They fly in Mexico and Central America, and in Tropical South America. They are represented in the East Indies by an allied genus, *Thaumantis*, which also contains large and beautiful butterflies of a dozen species. The specimen represented is, unfortunately, somewhat broken, but shows the character of the underside of the fly very well. This also shows the utility of the orthochromatic process, as this species has colors on the underside which would not be shown in an ordinary plate.

This plate, like others we have given in the NEWS, was made by the Crosscup & West Engraving Company of Philadelphia,

and the butterfly was photographed in the Hall of the Academy by Mr. J. F. Sachse, the talented editor of the "American Journal of Photography," to whom we are indebted for it.—Ed.

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Some wonderful aberrations and varieties of well-known insects.

By B. Neumoegen, New York.

There is a German fairy tale about "Hans im Glück," of which I am forcibly reminded. I have been of late such a "lucky Hans," acquiring a number of remarkable varietal and aberratic insects which deserve names, and the knowledge of which I herewith beg to impart to my entomological friends. I never sat down with more pleasure to describe new insects than I did in naming the following forms:

Eacles imperialis ab. **punctatissima.**—Head, thorax and abdomen bright yellow, with purple patagiæ, purple thoracical maculations and overcast with purple on upper part of abdomen. Primaries above: the yellow only shows somewhat at apex, apical part of costa, at intersection of nervures and exterior margin, and at fringes. The entire wings covered with innumerable blackish brown dots, which, near base and along interior margin, are confluent, giving the wings a uniform appearance of blackish brown. A basal purple tinge at interior margin. The purple maculations along exterior margin bounded by the transverse arched line from apex to centre of interior margin, as well as the discal spot, surrounded by a purple ring penetrating the granulated shade. Secondaries: upper part from base along costa to apex bright yellow; the space enclosed by the purple mesial line, and even beyond it, enclosing discal area up to base, covered with countless dots, giving the lower half of wings nearly a uniform appearance of blackish brown. Discal spot prominent, with purple ring and a purple basal tinge; fringe yellow.

Below: basal half of primaries and secondaries, as well as abdomen, bright yellow; the remaining space of both wings, as well as the discal spots, blackish brown produced by the many dots, partly confluent, of this color. Basal half of costa of primaries, and costa of secondaries, blackish brown; fringes yellow.

Type ♂ coll. B. Neumoegen.

This extraordinary insect was taken by Mr. H. Saenger at Highbridge, in the upper part of New York City.

Eacles imperialis var. **nobilis.**—Males above: thorax and abdomen dark purple. Antennæ, head, as well as a central thoracical line and a cross-band at first segment of abdomen, of brownish yellow. Primaries and

secondaries of a deep russet color; fringes and all maculations of dark purple, strewn with black dots, much like in var. *didyma* DeB., thus showing an irregular, triangular space of deep russet resting with its base on apical half of costa pointing towards median nervure and bounded by the discal spot and transverse apical arched line respectively. Secondaries of a rich russet, with discal spot; mesial undulating band and basal tinge of dark purple; some black dots along marginal area.

Below: wings and abdomen of a lighter russet shade. Discal spots, space between apical, arched transverse line and external margin of primaries of dark purple, fading towards interior margin. The marginal space of secondaries between mesial band and exterior margin of brownish purple.

Females.—The same rich russet as in the males prevails, but only the discal spots, the transverse apical, arched band of primaries, the mesial band of secondaries and the basal tinges are of dark purple. The marginal spheres in both wings resembling var. *didyma*, are of a bright chestnut-brown. Below: both wings russet, with light brown marginal sphere, somewhat fading into yellow in basal half of interior margin of primaries.

This is a remarkable variety from southwestern Texas; constant in all its characters, as shown by a number of examples I have lately received.

Types, ♂ and ♀, coll. B. Neumoegen.

Citheronia regalis ab. **Saengeri.**—Head, thorax and abdomen bright sulphur. Primaries grayish purple, with yellow nervures. Basal and discal dots very large and like the transverse intercellular, oval maculations of bright sulphur; apical part of costa and interior margin bright sulphur, fringes equally so at intersection of nervures. Secondaries uniformly bright sulphur, with a slight orange, basal tinge and faint indications of grayish purple transverse maculations in cells near anal angle.

Below: primaries of bright sulphur, with a slight orange tinge along nervures. Discal spot and marginal space from apex to outer angle, as well as the two upper cells near centre of costa, of grayish purple. Secondaries bright sulphur, with discal spot and mesial band of orange color; apical part of three upper cells of grayish purple.

Type ♂, coll. B. Neumoegen.

A wonderful aberration, fresh and bright in appearance, and entirely distinct from the typical form. It was taken in the upper part of New York City by Mr. Herman Saenger, to whose industrious exploits I cannot do more honor than by dedicating this beautiful insect to him. It is an enormously developed ♂, expanding 115 mm., the body having a length of 35 mm.

Platysamia Gloveri var. **reducta.**

This is a very curious dwarf form, flying in the highest part of the Colorado range of the Rocky Mountains. The discal spot in primaries invariably touches the transverse posterior white band. The reddish brown space containing the discal spot and bordered by the white basal and transverse posterior bands is so narrow that in most of the examples it shrinks to a mere black line at the centre of interior margin. The basal reddish brown area containing the discal spot of secondaries is so narrow, that it never exceeds 25 mm. in its measure. In other respects the insect tallies with the typical form.

It is easily distinguished by its minimal size of body and wings, and by the transverse band connecting with discal spot of primaries. Expanse of wings ♂, 83 mm.; 85 mm. Length of body, ♂, 25 mm.; ♀, 25 mm.

Types coll. B. Neumoegen.

Described from a number of examples taken at an altitude of 11,000 feet by Mr. D. Bruce in July, 1890, at Gibson Gulch, Colorado.

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ON THE EARLY STAGES OF SOME MOTHS.

By Wm. Beutenmuller, New York.

Cherocampa tersa Linn.

Larva.—Body pale green, with very fine longitudinal irrorations. Head small, smooth, green; mouth parts black; along the subdorsum is a rather broad, white band running from the fourth segment to the caudal horn on the eleventh segment; on the band is placed, on each segment, a round black ring, the one on the fourth segment with a black eye-like spot in the centre. Color of the underside of the body and all the legs concolorous to the above; caudal horn reddish, with the apex black. Length about 60 mm.

The larva figured by Abbot and Smith (Ins. Ga. p. 75, pl. 38) has in each of the black rings along the subdorsum a large red spot. In all my specimens, six in number, no sign of the red spots was apparent.

Food-Plant.—*Manettia bicolor.* September.

Pyromorpha dimidiata H.-S.

Egg.—Ovate, pale yellow, smooth, shining, slightly flattened

above and below. Length about 1 mm.; width about .75 inch. Laid June 18th; emerged June 28th.

YOUNG LARVA.—Dirty grayish white and covered with rather long hairs of the same color; head also grayish white with a brown spot on each side of the anterior part; mouth parts pitchy black. The head is sometimes entirely black or brown, shining; underside of body same color as above. Length 50 mm.

Not knowing the food-plant I was unable to rear the larvæ to maturity. The eggs I obtained from a number of females flying amongst a species of grass on the border of a well-shaded and dry piece of woods on Long Island, N. Y.; about fifty imagos were taken. The young larvæ, however, refused to eat the grass on which I found the moths, and which I supposed was also the food of the species.

Apatela innotata Guen.

LARVA.—Head, posterior portion pitchy-brown, anterior part dirty-white, with the mandibles pitchy. Body above dull grayish brown, with a series of four shining, black, piliferous spots on each segment along the dorsal region from the second to the last segment and two rows of yellow spots along each side with another row of black spots between; underside dull grayish. Legs and feet concolorous. The body is also sparsely covered with sordid white hairs. Length 25 mm. Food-plant unknown.

Found ready to pupate on the trunk of a hickory tree, the bark of which the larva mimics. Collected at Englewood, N. J., Aug. 21, 1890. Imago emerged May 6, 1891. The larva spun a rude cocoon made of small bits of wood.

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ROCKS.

By J. T. MASON, Houston, Tex.

On looking over the present volume of NEWS I noticed the article in the February number entitled, "Lepidoptera at the Electric Lights," by Dr. Ottolengui. Reading it caused all the difficulties in the way of many of us becoming advanced entomologists to rise before me. I handed the book to a young friend of mine and told him to read the article; he has collected about a year, and was greatly interested in the subject. After he had

read it through he remarked, "how does this fellow get all these names down so fine?" This is a question which is readily answered; he lives in New York and in his association with other more advanced students, and in having access to large collections he can readily manage it. This is a rock on which ninety-five per cent. of young beginners are wrecked. We will take this city as an example: I have known not less than six in the past two years that have commenced and have gone to pieces on this rock and fallen by the wayside, and it is most natural. A beginner sees a collection, and is attracted by its beauty, and concludes that he would like to become a collector also, and gets his net and bottle and makes a start. He soon finds that he has a large lot of material on hand and can't tell one from another, rare from common, or good from bad, and winds up in confusion and disgust. Now, if we had in this country some such works as are to be found in Europe, which give figures of most of the species, and published at a reasonable price, many of the difficulties would disappear, but at present the literature is so scattered, and the illustrated works in this country are so very expensive as to place them out of reach of most of us. Those plates of *C. regalis* have suggested to my mind that if we had photos like these of the species in this country, or of a considerable portion of them along with descriptions of the colors, and if such a work could be gotten out, say at a cost of not over ten dollars, we would find a hundred collectors where we find one to-day. Last season a friend caught a *luna* moth and brought it thirty-five miles because he thought it a rarity; it would have crushed him if I had mentioned the fact that I had sent over six hundred to London during the same month. About twice a year we get an accumulation of unknown material and send them North for identification; this works pretty well where we have more than one of a kind, but it often happens that we have but one and don't want to box it and run the risk of having it lost or broken. All collectors know how we cherish a single specimen believed to be rare, and in future I never intend to let these single specimens go out of my keeping. I am, therefore, looking forward to the good time coming when we can all have better means of identification, and Entomology becomes more popular and generally studied. I have enumerated some of the rocks, but there are more, and I hope they may be gradually eliminated.

A NEW GLUPHISIA.

By Prof. Geo. H. Hudson, Plattsburg, N. Y.

Gluphisia avimacula n. sp.

Male.—Thorax cinereous; vertex of head, collar and anterior half of patagia nearly black; front, palpi and pectus pale brown; legs cinereous, the tarsi ringed with dark brown; abdomen gray. Primaries cinereous, thickly dusted with black scales; a black basal line, dentate on subcostal and median veins and sending down, intermediately, two fine black lines, which reach and enclose the small, pale ochreous basal spot, resting on median vein; obscure on costa and below submedian vein. Second band nearly straight, deep black, prominent, starting on costa at a little less than half way to the apex, slightly angulated outwardly on subcostal and median veins, forming a shallow inward curve or sinus below submedian fold, widening at internal margin. An ochreous subtriangular discal spot edged with black, projecting a point towards the costa and a shorter one towards the base along median vein. Externally contiguous to the discal spot is an indistinct third band, subparallel to the first, slightly waved, pale brown and diffuse, more distinct on internal margin. Beyond this is a narrow and faint fourth beginning on costa at about three-fourths distance from base, parallel to external margin, dentate inwardly on the veins, slightly angulated at vein 2, edged externally with pale cinereous. A fifth band consisting of a row of dark spots, edged within with pale cinereous, runs about midway between band four and the external margin. It has a slightly waved appearance with a shallow inward curve on vein 2, from thence it runs to the outer angle and joins the row of black, diffuse, intervenular spots in the pale cinereous fringe. The ground color of wings is palest between the first two lines, and slightly yellowish beyond and below the discal spot. Secondaries brownish cinereous, with a faint mesial band, dentate inwardly between veins 1 and 2, more distinct at internal margin, where it is white, shaded before by a black line and behind by a more diffuse black spot, followed by another pale spot before reaching margin; fringes as in primaries, but with intervenular spots more diffuse, almost forming a continuous line. Beneath concolorous with secondaries above, tinged with cinereous at the apex of the primaries and outer third of secondaries. On each of the wings, beyond the middle, a slightly undulating darker band edged with pale whitish outwardly and following the course of the band above.

Female with front cinereous, concolorous with thorax. Expanse: male, 38 mm.; female, 40 mm.

Described from two males and one female taken May 15th and 22d, 1887, and May 10, 1891, at the electric lights, Plattsburg, N. Y.

The enterprising bee keeps up with the times by having his apartments arranged in sweets.—*Yonkers Gazette.*

A NEW GNOPHÆLA FROM COLORADO.

By W. J. Holland, Ph.D., Pittsburg, Pa.

G. Clappiana n. sp.—Male. Upperside: anterior wings black, with a quadrate spot of pale yellow at end of cell and a band of three small, sharply defined, oval spots below the apex. A minute white spot at base; fringes at apex and near exterior angle narrowly white. Posterior wings deep bluish black, with the fringe somewhat broadly white. Abdomen blue-black; front white; collar marked by two small blue spots; patagiæ pointed with white at base and tips and bordered internally with pale blue. Underside: anterior wings as above. Posterior wings with faint white spot at end of cell, otherwise as above; chest rufous. A line of small white spots is found on each side of abdomen.

Type coll. Holland. Described from a single specimen taken upon the mountains of Williams River, Colorado, by Mr. Geo. H. Clapp, president of the Iron City Microscopical Society, July, 1891.

This description was written in the rooms of the American Entomological Society after a careful search through the literature and examination of the species in the genus.

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A NOTE ON THE LIMACODID GENUS ISA Pack.

By Harrison G. Dyar.

Recently on a visit to Boston I saw, by the kindness of Mr. Henshaw, the type specimen of the genus *Isa*, created for Herrich-Schäffer's species *textula*. The specimen is a small female *Sisyrosea inornata* G. & R., and I have compared Dr. Packard's characterization of genus *Isa* with specimens of *inornata* and find all the characters borne out. Especially his description of the venation is characteristic of the somewhat peculiar venation of *S. inornata*. I am not sure that this is the correct identification of the species *textula*, but as I know of no other species to which the name should apply, I would arrange the genus as follows:

Genus Isa Packard.

sisyrosea Grote.
inornata G. & R.
? textula H.-S.
nasoni Grt.
rude Hy. Edw.

ELEMENTARY ENTOMOLOGY.

The third stage of existence in lepidopterous insects is called the chrysalis or pupa stage. The term chrysalis is derived from a word meaning golden, because many of them are decorated with golden spots. Pupa comes from a word meaning boy or child, because a pupa was thought to resemble an Egyptian child swathed in bandages, or a mummy. In the Rhopalocera or diurnals, the chrysalis or pupa, is naked, and not covered with a cocoon, nor do the larvæ enter the ground to undergo their changes. The majority also differ in being variously ornamented and shaped, although the general pattern is that of an inverted cone. The chrysalids of the Hesperids or skipper butterflies which approach the moths or Heterocera in character are protected by a few leaves or blades of grass which the caterpillar draws around itself before changing. The character of the outer hard covering in these is different from the diurnals in general, being hard, dark and shining, like those of the moths, although quite a number are covered with a light bloom like that on a plum. It is thus quite easy to distinguish the chrysalis of a butterfly from that of a moth. The chrysalids of the diurnals are suspended to a stick or leaf by the extremity, or in addition to this in some cases are fastened by a sling of silk which goes around the body of the chrysalis, and is fastened on each side of the supporting leaf or twig. In the former case the head of the caterpillar hangs downward, and in the latter it points upwards and outwards at an angle. Some of the larvæ of the moths find a convenient place under a piece of bark and change to a chrysalis; some spin a shroud or cocoon, which in some cases is composed of silk, and in others of the caterpillar's own hairs interwoven. Some employ bits of wood, leaves, sticks and pieces of earth in the same way. Many enter the ground and transform as already mentioned. The changes that go on in a chrysalis are wonderful. The chrysalis is apparently dead, showing no signs of life, but in the inanimate looking object is being developed a beautiful insect, perhaps a gorgeous Morpho* or a beautiful Ornithoptera,* yet to all appearance it is an insignificant looking object, giving no indication whatever of Nature's legerdemain or fairy-like performances.—Ed.

* Grand butterflies from Brazil and the East Indies, respectively.

RANDOM NOTES ON LEPIDOPTERA.

By Henry Skinner, M.D., Philadelphia.

This Summer *Pamphila hobomok* ♂, and the two females (black one *Pocahontas*), were quite abundant May 31st, and eggs were secured. *P. zabulon* ♂ was also rather common at the same time. I have never seen a female of *zabulon* yellow like the male, and am sure it does not exist in this locality if at all. I have found the male and the black female in copulation a number of times. I can distinguish the females of *zabulon* and *hobomok* without any difficulty, and feel sure that the two species are entirely distinct, and at some future time will have more to say about them. June 10th I saw a female *P. manataaqua* ovipositing, she went down in the grass near the roots and close to the ground, and walked about in the miniature woods depositing an egg here and there near the base of the blades and on the dead and decaying grass. These eggs hatched June 17th. This species was exceedingly abundant on a grassy embankment, and the specimens darted from flower to flower by a succession of quick jerks. I mention the occurrence of the species here in such numbers as it is usually considered quite rare. After one becomes acquainted with it, it can be readily distinguished from *cernes* even on the wing. *P. fusca* was common in Fairmount Park June 9th, and nice, fresh specimens of *Eudamus lycidas* were taken. *Pamphila Aaroni* was moderately plentiful at Cape May, N. J., June 14th. Mr. Philip Laurent has also taken the species at Anglesea, N. J. It is a very wary fellow, and has a very quick flight, but if you get him in his favorite place, the trumpet-like flower of the wild morning-glory, he is at your mercy. He flies straight for the flower, and alights on the lower edge, and walks slowly in until he reaches the sweets, and keeps very quiet, and you would not know there was a specimen around until you learn his artful tricks. A cyanide-jar at the opening of the flower means business and a fine, faultless specimen.

P. delaware is a great rarity here; I saw one fine specimen on a ball-bush flower July 11th, and he was so pretty and fresh, with his brilliant yellow-orange under wings, that I tried to induce him to go into a small cyanide bottle, but he did not agree with me on the subject. Next time I see that fellow I will use a net. I think the types were caught here by Mr. James Ridings. *P.*

massasoit is exceedingly abundant in the swamps near Westville, N. J., from the 4th to the 10th of July, and you can get them as fast as you can use net and bottle. I think it quite a pretty species when fresh; it has such pretty velvety-brown wings. Mr. H. G. Willard, of Grinnell, Iowa, informs me that *Amblyscirtes samoset* flies there in the woods about June 9th, but is anything but common. Mrs. Slosson has also taken a few specimens of this rare species at Franconia, N. H. I will now skip from the skippers and give a couple of new localities which are interesting. Mr. H. G. Willard has sent me *Chrys. helloides* from Iowa. Mr. Edwards' catalogue gives Montana to Arizona; Oregon, California. M. C. H. T. Townsend has sent me *Synchlœ crocale* from Las Cruces, N. Mex.; types, I think, came from western Ariz. The New Mexico specimens lack the internal row of white spots on the secondaries.

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An Exorista parasitic on Lagoa opercularis.

By C. H. Tyler Townsend, Las Cruces, N. Mex.

Dr. Alfredo Duges, of Guanajuato, Mexico, has kindly given me an *Exorista* labeled "from the cocoon of *Lagoa opercularis*." It agrees with none of the twenty-six new species described by Mr. van der Wulp in the "Biologia Centrali-Americana," and a description of it is presented below. It belongs near *E. flavicans* v. d. W. among the species with ciliate hind tibiæ.

Exorista lagoæ nov. sp. ♂.—Black, cinereous with a more or less brassy reflection. Eyes dark brown, thickly pubescent; front, sides of face, cheeks and posterior orbital margins pale brassy; front at vertex narrower than the eyes, much wider at base of antennæ, rather prominent; frontal vitta black, less than one-third the frontal width, wider anteriorly, pronged posteriorly; frontal bristles descending to base of third antennal joint, those before base of antennæ decussate, the sides of front with fine bristly hairs outside the frontal row and on the ocellar area; no orbital bristles; face receding, facial depression wide, silvery; facial ridges bare, only three or four very small bristles above the vibrissæ, which latter are decussate and inserted only slightly above the oral margin; sides of face narrow above, very narrow below base; cheeks narrow, invaded below by the cinereous hairy occipital area, with bristles on lower border; antennæ nearly as long as face, black; second joint short, third joint more than four times as long as the second; arista long, slender, scarcely thickened on basal third, indistinctly jointed at extreme base, black; proboscis short, fleshy, brownish, especially the large labella, which are furnished with

yellowish brown hair; palpi well developed, club-shaped, pale brownish yellowish, black, hairy; occiput cinereous, gray hairy, with a black band from vertex to centre, and the orbital margins with a fringe of black bristles. *Thorax* black, brassy-cinereous pollinose, leaving four more or less well defined black vittæ; thorax bristly and hairy, humeri and pleuræ cinereous; scutellum blackish at base, apical portion broadly ochreous, with an apical strongly decussate pair of macrochætæ and three lateral pairs, the intermediate one short. *Abdomen* moderately broad, ovate, covered with short bristles; first segment somewhat shortened, black, without macrochætæ; second to fourth segments pale brassy cinereous, leaving the hind margins and a median vitta shining black; second segment very faintly reddish on sides, venter silvery pollinose; a median marginal pair of macrochætæ on second segment and a lateral marginal one; about ten marginal on third segment; anal segment with macrochætæ interspersed with bristles. *Legs* black, femora and tibiæ faintly silvery; femora hairy, tibiæ with some strong bristles; hind tibiæ with a fringe of bristles on outer edge, a strong bristle beyond the middle and one or two at tip longer than the rest; claws and pulvilli elongate, the pulvilli smoky whitish. *Wings* longer than the abdomen, moderately wide, without costal spine, grayish hyaline; tegulæ yellowish gray, halteres dark brownish. Length 7 mm.; of wing, 6 mm.

Described from one specimen. Guanajuato, Mexico.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

THE List of Lepidoptera of Boreal America, by Prof. J. B. Smith, has reached 5042 numbered species to date; will be completed by Oct. 1, 1891.

Mr. LEVI W. MENGEL, of Reading, Pa., who went as entomologist to the West Greenland Expedition sent out by the Academy, has returned, and brought home a collection of about four hundred insects.

WE have heard that Prof. J. B. Smith sailed for Europe September 16th. We wish him a pleasant voyage, and have no doubt but what he will come back laden with entomological facts picked up in the museums of Europe.

Prof. R. R. ROWLEY, who has contributed a number of very interesting articles to the NEWS, has been appointed professor of Natural History in

the High School at Fort Smith, Arkansas. We hope he may continue to do good entomological work in this new and interesting locality.

It is a solitary fly that annoys. Where there are swarms of flies they have their time and attention partly occupied in mutual conversation, playing tag and other fly diversions; but get into a room with a solitary fly and he will give you his undivided attention.—*Boston Transcript.*

The death of Capt. K. Yankowsky on the upper Yang-tse-Kiang, is a blow to Entomology, and an especially severe one to me. He was known as an excellent captain, an indefatigable traveler, and an ardent collector. He had just returned from a collecting trip to the sacred Mount Omi in Szechuen, when death overtook him on board the boat, built by his own hands, in the midst of his awe-stricken Chinese crew.—B. Neumoegen.

As the commercial Paris green is frequently adulterated with lime I append a reliable test, which may be of use to the many workers in the field of economic entomology. If you take about as much Paris green as will lay on a dime and put it in about tablespoonful of aqua ammonia it will, if pure, all dissolve and turn to a beautiful blue color. If it is adulterated there will be a white sediment in the bottom, which shows the presence of lime.—F. W. Goding.

Expeditions to Western China and Tibet are, even at this day, connected with great risk of life and enormous expenses. Fanaticism, lying, stealing, are some of the many vicissitudes inflicted by the border people of both realms on European collectors. Although the Pratt Expedition, sent out by Mr. Leech, has been highly successful, no other collector will be sent there again for this reason. Mr. Kricheldorf, the head collector of the last expedition, writes me harrowing tales of his experiences.

B. Neumoegen.

Some of our old entomologists put us of the younger generation really to shame. Here is an example—Dr. John Gundlach, of Cuba, just writes me: "My health is unimpaired. On July 17, 1891, I celebrated my 81st birthday. My friend, Dr. Gutierrez, president of the Academy, died last December at the age of 90 years. Poey, my best and oldest colleague in Natural History, died in January, nearly 92 years old. I shall try to do the same. Next Spring I shall be on a collecting expedition in Porto Rico and St. Domingo." What youthful ardor and elasticity!

B. Neumoegen.

Bitten by a Tarantula.—While Samuel G. Williams, manager of the Union News Company, was unpacking a box of pears Thursday, which he received from Southern Texas, a tarantula leaped from the box and fastened its fangs in the middle finger of his right hand. He threw it from him and the spider was killed. In half an hour from the time he was bitten, Williams began to get delirious, and his pain was so great that it took three men to hold him. Three doctors are in attendance, but no

hope is entertained of saving the man's life.—A subscriber wishes to know if any reader of the NEWS has knowledge of an authentic case of death from the bite of a tarantula?

A NUMBER of the joints of the ordinary cactus of the plains (*Opuntia missouriensis*), containing pupæ, were recently sent from Colorado to the Kansas University and placed in the breeding cases. Although the pupæ have not yet transformed, a number of puparia have, within the past few days, disclosing two allied Syrphids, *Copestylum marginatum Volucella fasciata*. The puparia were lodged deeply in cavities within the stem,—evidently the feeding place of the larva. The puparia of the two species are scarcely distinguishable, both having a short, conjoined stigmatic tube and two slender anterior projections. The former species has the singular habit of continually keeping an alternate up and down movement of its remarkable antennæ while walking.—S. W. WILLISTON.

This June while on a tramp in quest of Coleoptera I was going through a patch of woods and I noticed on my path one of the larger predatory Diptera which so closely mimic a bumble-bee, and kindly determined for me by my friend, Mr. Wm. T. Davis, as *Dasyllis thoracica* Fabr. He was carrying away a Longicorn beetle. On attempting to pick him up he flew away carrying the beetle with him, which, nevertheless, he dropped upon being struck with my hand and settled in the grass a few feet distant, where he was easily captured. The proboscis of the fly had separated the elytra and penetrated the abdomen between the second and third segments. I have often noticed this fly preying upon soft insects, as Lepidoptera, etc., but never before upon a hard bodied beetle.

J. C. THOMPSON, Clifton, L. I., N. Y.

W. G. WRIGHT, a naturalist of San Bernardino, Southern California, is spending a few weeks in this section (Sitka, Alaska) for the purpose of collecting plants and insects. He finds much of a novel character to interest him, and considers that Alaska presents a wide field for investigation. On Thursday, in company with Fred. E. Frobese, he ascended Mount Verstovia by way of the Jamestown Bay trail, and remained on the summit for some six hours, during which time he secured a large number of species of plants and grasses growing above the timber-line. Mr. Wright has secured several species of flora which he believes to be as yet unknown to botanists. The Alaskan grasses in Mr. Wright's collection will be presented to the Department of Agriculture at Washington, and the flowering plants will be given to the Academy of Sciences at San Francisco and the State University of California, located at Berkeley. Very few insects have as yet been found by Mr. Wright during his search, and those discovered are of no particular value or interest.

LOCUSTS IN MOROCCO.—Some curious information in regard to locusts in Morocco is contained in the last British Consular report from Mogador. During the Spring the country was ravaged by immense swarms of the insects, which were first reported from the southern province of Soos

about the end of October, were overrunning the neighboring land of Haba and Shiadma by the end of November, and were subsequently heard of in various parts of the interior, and still later from the important grain-producing districts round Mazagan and Casablanca. Late reports from Mazagan were that they were settling down there, and busy laying their eggs, which caused great anxiety for the Spring crops, the young locusts, though unable to fly, being even more unsparing in their devastations than the adult insects. In addition to the damage done to green crops, groves of olive and almond trees were stripped of their bark in several districts, where the next yield of oil and almonds will be seriously affected. In some places farmers had to hurriedly gather their olives before they were ripe to save them from the voracious insects. No general and continued measures are taken, as in Algeria and Australia, against these pests, the only way in which their numbers seem to be materially reduced being the collection of large quantities for sale as food among the natives. They are not "unclean" to either Jew or Mohomedan, though prawns, to which they are compared in flavor by some Europeans who have tasted them, are not eaten. Taken into the town in camel loads in heaping sackfuls of ruddy brown or greenish yellow insects (the first color in Autumn, the latter in Spring); they are first boiled in salt and water, then fried or parched. The same method seems to have been in vogue, according to old writers, early in the last century. When properly preserved the locust was looked upon as a convenient form of food for travelers to take with them on the road. A fearsome story was recently told in the Mellah, or Jew's quarter of Mogador, that two little children, sent to fetch water at a village in Shiadma not returning, their parents went in search of them and found only a heap of bones thickly covered with locusts. It was further reported that a consignment of locusts from that district came in and was sold chiefly in the Mellah, and that many Jews fell ill in consequence of having unwittingly partaken of insects which had eaten human flesh.—*London Times.*

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

COMPTE RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, June 6, '91. —Descriptions of new species of Clytridæ and Eumolpidæ,* by E. Lefevre; *Colaspis chrevrolati*, St. Domingo, n. sp. Coleoptera of Eastern Africa,* by L. Fairmaire; *Hasumius*, *Sclomothus*, *Dichotymus*, *Blosyridius* n. gen. A new genus of Myrmecidæ,* by A. Forel; *Aeromyrma*. Note on the *Chrysochroides*,* by C. Kerremans. Additions and annotations to the lists of indigenous carnivorous Coleoptera and Lamellicorns, by A. P. de Borre.—July 4. Entomological miscellanies. IV. Diagnoses of Madagascan Phytophaga,* by A. Duvivier; *Menioporus*, *Neodera*, *Sanckia*, *Metopœdema*, *Cynortella*, n. gen.

BULLETIN DE LA SOCIETE PHILOMATHIQUE DE PARIS 3e Serie, III, 2, 1891.—On the function of the sting in *Heterodera schachtii;* On the buccal apparatus in the Phyrganids, by J. Chatin. On the resistance to asphyxia by submersion in some insects, by M. Devaux. Note on the structure of the venomous glands of Araneids, by P. Gaubert.

LE NATURALISTE (Paris), Aug. 1, 1891.—Two new *Parnassius* from Central Asia,* by L. Austaut.—Aug. 15. Habits and metamorphoses of *Erastria scitula* Ramb., a nocturnal lepidopter, by Capt. Xambeu.

JAHRESBERICHT DES VEREINS FUR NATURKUNDE ZU ZWICKAU (Saxony), 1890; Zwickau, 1891.—The Gall formations (Zoocecidæ) of the German vascular plants, an introduction to their identification, by Dr. D. H. R. von Schlechtendal.

NOTES FROM THE LEYDEN MUSEUM, xiii, 2, April, 1891.—Descriptions of new species of Curculionidæ,* by W. Roelofs. List of the Lepidopterous insects collected by Mr. A. G. Vorderman in the island of Billiton, by P. C. T. Snellen.

COMPTE RENDU. L'ACADEMIE DES SCIENCES (Paris), July 27, 1891.— Contributions to the natural history of a cochineal, *Rhizœcus falcifer* Kunck., discovered in the green houses of the Museum and living on the roots of the vine in Algeria, by J. K. d'Herculais and F. Saliba.

IL NATURALISTA SICILIANO (Palermo), May, June, July, 1891.—Catalogues of the Coleoptera of Sicily, by E. Ragusa. Entomological note on some species of the genus *Reicheia* and of the genus *Mylabris* (*Bruchus*), by F. Baudi.

ERTESITO AZ ERDELYI MUZEUM-EGYLET ORVOS-TERMESZETTUDOMANYI SZAKOSZTALYABOL (Proceedings of the Medical and Natural Science Section of the Transylvanian Museum Union), xvi, 1, 2, 3, 1891.— *Carabus violaceus* L. var. *Wotfi* Dej. L. v. Mehely. List of the Lepidoptera usually occurring at Klausenberg, by A. Pachinger. Contributions to the Orthopterous fauna of Szilagyer Comitates, by J. Pungur.

* Contains new species other than North American.

Annals of the Queensland Museum, No. 1, Brisbane, 1891.—Synonymical catalogue of the Lepidoptera Rhopalocera (butterflies) of Australia, with full bibliographical reference, including descriptions of some new species, by W. H. Miskin.

Zeitschrift der Deutschen Geologischen Gesellschaft, xlii, 4, Berlin, 1891.—Contributions to the knowledge of the fossil Arachnida, by E. Haase; two plates.

Berliner Entomologische Zeitung, xxxvi, July, 1891.—Orthopterological contributions, IV: The Pseudophyllidæ of Africa;*† three plates; List of the Acridiodæ collected by Dr. Paul Preuss in Cameroons,* figs.; Sumatran Phaneropteridæ, figs., by F. Karsch. New beetles from East Africa,*† by G. Quedenfeldt. Greek Heteroptera collected by E. von Oertzen and J. Emge,* by O. M. Reuter. Communications on Gallflies from Kreise Siegen,* one plate; Three new gallflies,* by E. H. Rubsaamen. Prussian Amber Beetles. new forms from the Helm collection in the Dantzig Provincial Museum,*† by C. Schaufuss. On the Hymenopterous genera *Evania* and *Gasteruption*,* by E. Taschenberg. On some North African Chilopods,* by C. Verhoeff. A contribution to the Central European Diplopod fauna,* id., four plates. A contribution to the knowledge of the Saldeæ and Leptopods,* id., fig. Some remarks on Apidæ,* id., figs. On the spinning of an *Aphidius* larva upon *Aphis* (*Drepanosiphum*) *platanoides* Schrnk., by Dr. W. Weltner, figs. Obituary notice of Dr. L. W. Schaufuss, with portrait.

Rendiconto dell 'Accademia delle Scienze Fisiche e Mathematiche (Sezione della Societa Reale di Napoli), 2e Serie, iv, 6, June, 1890.—Miscellanea Entomologica III: Species of Tenthredinidæ from Greece;* A new genus of Italian Tenthredinidæ;* Four species of Hymenoptera from Armenia:* A new species of *Derocalymma*,* by A. Costa.

XV. Bericht der Naturforschenden Gesellschaft in Bamberg. 1890.—The Hemiptera and Cicadina of the vicinity of Bamberg, by Dr. Funk.

Ofversigt af Kongl. Vetenskaps-Akademiens Forhandlingar. Arg. 48, No. 6, June 10, 1891.—The African genera of Calandridæ allied to *Oxyopisthen* Thomson,*† by C. Aurivillius, figs.

Annales de la Societe Entomologique de Belgique, xxxiv, Bruxelles, 1890.—Note on the Coleoptera brought from the Congo by MM. le Capt. Bia, Leon Cloetens, Fern. de Meuse, Joseph Duvivier and Lieut. Paul Lemarinel. List of the species and new descriptions,*† by A. Duvivier. Catalogue of the Ichneumonidæ of Belgium belonging to the group Tryphonidæ,* by Dr. Jacobs and Dr. Tosquinet. Essay on the Mafacoderms of Belgium, by E. Rousseau.

* Contains new species other than North American. † Contains new genera.

Deutsche Entomologische Zeitschrift (Iris, Dresden, iv, 1), Jahrgang, 1891, Lepidopterological No. 1, Berlin, 1891.—On the systematic classification of the butterflies, by Dr. E. Haase. List of the Lepidoptera collected in Palestine and Syria by Dr. Alphons Stubel, including three new species,* by H. Calberla. On a collection of Lepidoptera from Bangala, by Emily Mary Sharpe. New exotic Lepidoptera,* by Dr. O. Staudinger, two plates. A new *Parnassius*-form and two new Palaearctic species of *Arctia*,* id. The Macrolepidoptera of the neighborhood of Dresden, by H. Steinert.

Entomologische Nachrichten, xvii, 15, August, 1891.—Cryptid studies, by Dr. Kriechbaumer. On *Chiastocheta* (*Aricia*) *trotti* Zett., V. von Roder. The Zoöcecidæ of Lorraine (continued), by J. J. Kieffer.—No. 16. August, 1891. A new *Ornithoptera*,* by E. G. Honrath. Sumatran Odonata collected by Dr. L. Martin in Bindjei (Deli),* by Dr. F. Karsch. Tryphonid studies,* by Dr. Kriechbaumer. The Zoocecidæ of Lorraine (concluded), by J. J. Kieffer.

Mittheilungen der Schweizerischen Entomologischen Gesellschaft, viii, 6, 7, Schaffhausen, 1890.—Lepidopterological gleanings,* by P. Ratzer. Norwegian ants and glandular cement as material for the nest building of ants, by Dr. A. Forel. A new Orthosia from southern France,* by Dr. M. Standfuss. A new *Ichneumon* from Switzerland,* by Dr. Kreichbaumer. *Ephippigera crucigera* Fieb., by Dr. G. Schoch. On some varieties of *Carabus auronitens*, by Dr. G. Stierlin. Remarks on Coleoptera and description of new species,* id. On the habits of the Wustengrill (*Brachytrypus megacephalus* Serv.), by Dr. A. Forel. Collecting note (a new species of Coleoptera) and Coleoptera Helvetiæ (continued), by Dr. G. Stierlin. New Hymenoptera from Madagascar,* by H. de Saussure. Description of some new snout beetles,* by Dr. G. Stierlin.

Verhandlungen d. k. k. Zoologisch-botanischen Gesellschaft in Wien, xli, 2.—Contribution to the Microlepidopterous fauna of Dalmatia,* by Dr. H. Rebel. Diagnoses of new butterflies in the k. k. Natural History Court Museum,* by A. F. Rogenhofer.

Annales des Sciences Naturelles. Zoologie 7e Serie, xi, 6, July 20, 1891.—On some points in the history of the embryonal development of the praying Mantis (*Mantis religiosa*), by H. Viallanes; two plates.

Melanges Biologiques tires du Bulletin de l'Academie Imperiale des Sciences de St. Petersbourg, xiii, 1, 1891.—Entomological contributions: I. Two new Central Asian species of *Carabus*. II. On the synonymy of some Carabids, by A. Morawitz. List of the species of the genus *Scolytus* in the collection of the Musee de l'Academie Imperiale des Sciences of St. Petersbourg,* by I. Schevyrew.

Bulletin de la Societe Imperiale des Naturalistes de Moscow, 1890, No. 4; 1891.—*Tarantula opiphex mihi*,* by W. A. Wagner; 1 plate.

* Contains new species other than North American.

Travaux de la Societe des Naturalistes a. l'Universite Imperiale de Kharkow, xxiv, 1891.—List of the Evaniidæ found in the government of Kharkow, by W. A. Jarochewsky.

West American Scientist, vol. vii, No. 61.—New Bombylidæ from California, by D. W. Coquillett. *Lordotus junceus* n. sp., *L. diversus* n. sp., *Toxophora vasta* n. sp.

Transactions and Proceedings of the New Zealand Institute, vol. xxiii, 1890.—Further Coccid notes, with descriptions of new species from New Zealand, Australia and Fiji, by W. M. Maskell. The habits and life-history of the New Zealand Glowworm, by G. V. Hudson. On New Zealand Cicadæ, by G. V. Hudson. A few words on the Codlin-moths *Carpocapsa pomonella* and *Cacœcia excessana*, by G. V. Hudson. New species of Lepidoptera, by E. Meyrick. On new species of Araneæ, by A. T. Urquhart. On the occurrence of *Danais archippus* and *Sphinx convolvuli* (?) in Nelson, by R. I. Kingsley.

The Journal of the Linnean Society, vol. xxiii, No. 146.—On the tongues of the British Hymenoptera Anthophila, by Edward Saunders. Vol. xx, Nos. 124-25.—Notes on the zoölogy of Fernando Noronha, by H. N. Ridley. Insects, excepting Coleoptera, by W. F. Kirby. Coleoptera, by C. O. Waterhouse.

Entomologist's Monthly Magazine, September 9.—Entomological notes from Port Darwin, by J. J. Walker. Larva of *Eupoecilia geyeriana*, by N. M. Richardson. New genera of Agdistidæ and Pterophoridæ, by Lord Walsingham. Notes on British and exotic Coccidæ, by J. W. Douglas. Above paper describes two new species, *Orthezia occidentalis* from Colorado, and *Orthezia prælonga* from Trinidad. On two species of *Elcatis* found in Japan, by S. Lewis. Notes on food-plants of *Thecla rubi*, by R. M. Prideux. *Stenophylax alpestris* in Yorkshire, by G. T. Porritt. *Nothochrysa capitata* near Weymouth, by N. M. Richardson. *Dufourea vulgaris* at Cobham Surrey, by E. Saunders. Various captures in June and July, by C. W. Dale. On oviposition and ovipositor in certain Lepidoptera, by John H. Wood.

The Entomologist, vol. xxiv, No. 338.—*Cucullia verbasci* and its allies (with plate), by Richard South. A preliminary list of the insect fauna of Middlesex, by T. D. A. Cockerell. Entomology of Granada and its neighborhood, by F. A. Walker. Contributions to the chemistry of insect colors, by F. H. P. Coste. Notes, news, captures, etc. Doings of societies.

Obituary.—The death is announced of Mr. Ferdinand Grut, F.L.S., who was at one time vice-president of the Entomological Society of London, and also occupied other important positions in the Society at various times.

Doings of Societies.

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON.—February 5, 1891. Mr. Schwarz presented for publication descriptions of two North American species of the Cuculionid genus *Phytobius*, and one of them he considered to be identical with the European *P. velatus*. The other is described under the name of *Ph. griseomicans*. Mr. Schwarz also spoke of the difficulty in recognizing, from the descriptions, the North American species of *Pityophthorus* and pointed out that only secondary sexual characters seemed to offer a satisfactory criterion for the separation of many closely allied species. The *Pityophthorus* so common under bark of Liquid Amber is not *P. annectens* as formerly assumed by him, but is identical with the species occurring under bark of Sumach, and which is named in collections *P. consimilis*. Discussed by Messrs. Riley and Schwarz.

Prof. Riley introduced the question of what, strictly speaking, is a cocoon, and said that he was strongly of the opinion that this term should not be applied to cells formed by the hollowing out of plant substances, such as the end, stalk or crown of plants, or to cells made in the earth. The word "cocoon," he stated, should signify a structure composed more or less of silk or gluten. The others could be more strictly termed pupal cells or cradles.

C. L. MARLATT,
Recording Secretary.

OBITUARY

EDWARD BURGESS.—"Edward Burgess, the well-known entomologist and yacht designer, died at Boston the early part of July, 1891. He was forty-three years old at the time of his death. After graduating at Harvard in 1871, he was instructor in entomology for some time, and became well known as a student of the Diptera. He published a number of descriptive papers, and brought together a large collection. He also became interested in insect anatomy, and published several admirable papers upon this subject. His anatomy of the milk-weed butterfly, published in the Memoirs of the Boston Society of Natural History is a most admirable paper, and a positive contribution to knowledge."

ENTOMOLOGICAL NEWS for September was mailed September 2, 1891.

HYMENOPTEROUS PARASITES.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. II. NOVEMBER, 1891. No. 9.

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On the method of Spinning the Cocoon in a certain species of the Ichneumonidæ. See Pl. VIII.

By M. W. VAN DENBURG, A.M., M.D., Fort Edward, N. Y.

The larva on which there was already one set of cocoons when captured, belonged, apparently, to the Sphingidæ, was a little over two inches long, and had a crop of twenty-five or thirty cocoons already scattered along its sides. It probably fed on a frost grape vine, where it was captured.

Two or three days subsequent to its capture, a fresh crop of parasites were discovered pushing their way into the outside world.

When this was first observed, all the stages were in progress—from boring beneath the skin to half woven cocoons. Subsequently many others appeared, and the whole stage from beginning to end was carefully watched.

At first the little white, semi-translucent worms could be seen working their way up from the deeper layers toward the surface of the opaque green of the host's tissues. When finally they reached the surface, immediately beneath the outer skin, by continual pressure of a sharp, but soft-pointed head, and so far as

could be seen, by no gnawing or eating force, they finally succeeded in pushing through a very minute extremity.

This soon began to fill and enlarge by distention from within, as if the liquid contents were being forced into it from beneath the surface. When far enough advanced above the surface a distinct wriggling motion could be perceived. Finally, when free or nearly free, the process of spinning the cocoon began.

Bending over sidewise until the head of the little white grub touched the surface of its host, close to where the least fraction of its body still remained fastened in the hole whence it had emerged, the head begins to bob up and down, and from side to side, with a ceaseless regularity. With the naked eye this is all that can be seen, but under a glass enlarging four or five diameters, a very fine web is seen extending from the mouth; soon a fine open-meshed net begins to arise about the base and gradually increase in height. Each time the worm only touches the edge of the structure, which does not wholly surround the body, but reaches only a little more than half its circumference. Finally, the meshes are brought up to the full height of the erect grub and roofed in as high as it can reach

The next step is not in all cases the same. Sometimes the open side is closed down to near the middle of the body, but more often the worm turns end for end, and begins industriously to spin the white opaque cocoon from the bottom. This it does by the same constant motion, bending to near the middle of the body with each sweep of the head and carrying it to the full length of extension. Soon the strokes grow shorter, the little creature is wholly immeshed and it turns round and round, up and down, changes ends again and again, until it can no longer be seen. Finally, after the inner glazing has been applied, it at lasts ceases its perpetual motion and passes into a well-earned sleep.

The cocoon will now be found slightly attached to the surface of the host by the loose meshes before described, and it may be removed with very little force.

Some variations from the above should be mentioned. Occasionally a grub will begin to spin the open meshes about himself by the time he has only half emerged into the outer world. The two processes then go on simultaneously. Again, another will not begin this work of spinning until wholly free from the hole through which it has forced its way. In this case it sometimes

falls to the surface on which the host rests, and having no method of locomotion, begins to spin its cocoon where it chances to fall. This it can do as well lying on its side as when standing on end; only in the former case it passes the head from side to side, over the body, instead of up and down, as when perpendicular.

As to the time occupied in the various stages—from five to eight minutes elapse after the worm is first discovered beneath the skin until the small rounded head is seen above the surface of the skin. Not far from ten minutes are consumed in fully freeing the body, while the cocoon spinning goes on visibly for at least half an hour, and probably continues twice to four times as long in the privacy of its own chamber.

The first crop, the one upon the pupa when captured, hatched in about one week from the time it was taken. The second crop began to hatch on the tenth day from the time they first appeared.

Unfortunately, all the perfect insects of the first lot were lost; they were wholly black. Of the second lot some specimens accompany this paper. They all had yellowish legs, being conspicuously distinguished by these from the first to appear.

The first crop consisted of twenty-five to thirty-five cocoons; the second of upwards of fifty. It is worthy of remark that no visible mark or injury could be found under the glass at the points where the worms emerged from the surface of their host.

———o———

TERIAS NICIPPE ON LONG ISLAND.

By Richard E. Kunze, M.D.

On Sunday morning, August 2d, this year, a rainy and threatening kind of a day, I started off with a small *Catocala* net, ovoid in shape and only 5 x 8 inches in respective diameters. A friend of entomological aspiration whom I met, went with me. After spending two hours inspecting many trees of Long Island City in vain, we started off in another direction, which brought us to the edge of a swamp and low meadows, the water of which empties directly into the East River. By this time the sun came out hot. I suggested to take in the swamp, part of which was good cow pasture with a solitary thistle—*Cnicum pumilum* here and there on rising ground. On thistles I took a few *Papilio asterias* and *troilus*, also sometimes *thysbe*. Lower down as far

as the wet meadow quantities of Hyssop—*Hyssopus officinalis*, Mountain Mint—*Pycnanthemum aristatum*, var. *hyssopifolium*, and Blue Vervain—*Verbena hastata*, were in bloom. Here I took many Pamphilæ, *Argynnis myrina*, a specimen of *Limenitis disippus* and a few *Colias philodice*, which swarmed around the plants of the mint family. All at once a—to me—very strange looking specimen with wings of a golden hue and of such contrast from the color of *Colias*, came out from the Alder bushes, that it attracted my attention at once. It had a jerky flight, like *Satyrus alope*, and gave me some work before I took it with that small net. Shortly after I started up another male of this same rare visitor and took the second *Terias nicippe*. About noon I saw a third male sipping moisture from the black mud along a cow path, and not wishing to soil the net, flushed it first, and, after a fruitless chase through mud and mire, lost it altogether, pursuit in that swamp of Alder—*Alnus serrulata*, being an impossibility.

Hungry and parched, we started homeward, and reaching high ground again, my companion, Mr. Louis Kohl, drew my attention to a very conspicuous white flowering shrub at a distance from us in another part of the swamp. Thither we started, and on the way, near edge of swamp, I saw for the first time the food-plant of the larva of *T. nicippe* in full bloom, which is American Senna—*Cassia marilandica*. With its masses of yellow, pea-flower shaped blossoms, it at first hid from my sight a female *T. nicippe*, which was inspecting its pinnate leaves in a fluttering, kind of a suggestive way. I gave the net to my friend and he took a perfect female at the first stroke of the net. We discovered no ova.

As we neared the white-flowering shrub, which proved to be Sweet-scented Pepperbush—*Clethra alnifolia*, we passed any number of *Cassia marilandica* from four to eight feet high, and which proved the centre of attraction of *T. nicippe*. These plants grew in submerged meadow land mostly along the edge of impassable jungle of *Rhus venenata*, *Alnus serrulata*, *Acer rubra* and a few *Clethra alnifolia*, intermingled with briars and the vines of *Clematis virginiana* and *Ampelopsis quinquefolia*. Most of these senna plants grew on the edge of a horseshoe-shaped piece of meadow, at the concave end of which stood the fragrant White Alder, or Pepperbush so called. This spot proved to be

the El Dorado of the day. Countless numbers of insects visited it, mostly Hymenoptera, some Lepidoptera, and a few Coleoptera. Here I took *Hemaris thysbe*, *Pyrameis huntera*, *Eudamus tityrus*, *Danais archippus*, *Lycæna pseudargiolus* and also missed a *Papilio*. But while busying myself with the aforementioned I was three times surprised by specimens of *T. nicippe*, all males, which tried to fly past me in making the circuit of that horseshoe. Of these I took one more specimen which was slightly injured. When chased they would fly straight for the bushes and disappear.

It was so submerged a locality that I had to cover the grass with an armful of Alder brush, and which did not prevent the soles of shoes from being out of water. Trying as this was, the most vexed circumstance happened after handing my net to Mr. Kohl, wishing him to take a *nicippe*, which flew hard by. He chased the beauty until he landed knee-deep in a meadow hole full of water. With an exclamation more vigorous than virtuous, he returned the net without the prize. During this exciting episode, and while admiring the many forms of insect life visiting the showy, white racemes which terminated every branchlet, much like that of Larkspur (*Delphinium*) of the Pepperbush—a very rare and swift flyer appeared and hovered over the fragrant blossoms for a few seconds only. It was *Aellopos titan*, feeding within three feet of my eyes, and I with no net at hand. It was twice the size of a large *H. thysbe*, had clear wings with a very dark or blackish border, and a body as stout as that of a Smerinthid. In my anxiety to take it, I put one foot forward with cyanide bottle in hand, when, like lightning, it disappeared as suddenly as it came. Other Macroglossids came, but no more *titans*. My friend afterwards took a fine male *Chrysophanus thœ*, feeding on the flowers of Hyssop, in close proximity.

August 8th I returned to same locality with my largest net and stood for two hours in a broiling sun taking specimens from that Pepperbush. While thus engaged three more male *T. nicippe* came around the horseshoe curve and were all taken. At exactly 1.30 P. M. *A. titan* struck the opposite and unapproachable side of the Pepperbush again. I heard but did not see plainly enough which intruder it was. After a very few moments I recognized the object plainly as it took its swift departure.

Sunday, August 16th, myself and young friend returned to that sweet-scented Pepperbush early in the day and took turns

watching it for rarities with nets of all sizes. Up to 1.30 P. M. took seven more fine specimens of *T. nicippe*, all flying close by to their food-plant (of the larva), and suggestive of their search for females. Of the whole number one, a female, was surprised examining the leaflets of *Cassia marilandica*. No ova were found. So much poison Sumach grew everywhere beside the Senna that I could not make a thorough search, it affects me with a fell virulence. My friend, Mr. L. Kohl, took a male *nicippe* out of that number on opposite side of swamps, where Hyssop was more plentiful than Senna bushes. There he captured another fine male of *Chrysophanus thœ*. The flight of *nicippe* is peculiarly low, a kind of zigzag sort of a way, which they persist in unless hard pursued. *S. alope* flies often higher, but otherwise not unlike this species of *Terias*. Three specimens, all males, made their escape that day, and with the exercise of a little more care there was no excuse that they got away except for the benefit of the species. Altogether, we captured fourteen specimens in Long Island City, all fresh looking and but one defective of the lot. No doubt exists in my mind that they were bred in this locality. It is reported that they have not been seen in large numbers since 1879 in this neighborhood.

Another word about *A. titan* and *Clethra alnifolia*. I watched from 11.30 A. M. up to 1.30 P. M. parched, sunburnt and mosquito-bit, gazing at the flowers of the White Alder and now past their prime, without having another glimpse of that southern Sphingid. I would advise all lovers of the flora and insect fauna to plant a sweet-scented Pepperbush in their garden. Although naturally found in swamps, it thrives well in any garden soil with sufficient sun and water to develop its growth. Most of the nurserymen have it on sale, and it will repay any naturalist for the trouble of cultivating this charming plant. In swamps it attains a height of eight feet, in gardens from four to five, and remains in full bloom for nearly five weeks. Its fragrance is widespread and delicious.

Whisky is Bug Juice.—Peoria, Ill., September 24th. The Distillers and Cattle Feeding Company has been experimenting with the Takamine or Japanese process of making whisky. The distillers are so well pleased that they have decided to fit up the Manhattan Distillery with new machinery. The new plan greatly reduces the cost of manufacture. A queer feature is that a species of bug found on the rice is used instead of yeast for the fermenting process.—*Philadelphia Record.*

A NEW PAMPHILA.

By Henry Skinner, M. D., Philadelphia.

P. panoquinoides n. sp.—Expands one inch. Color brown. Superiors have two minute fulvous spots on the subcostal nervules and a larger spot in the disc below these. Inferiors immaculate. Underside.—Superiors are same color as above, but of a lighter shade, with a patch of fulvous scales about one-eighth inch from base; the spots seen above are repeated, and there are two additional ones. One of these is V-shaped, and is the largest and situated between the first and second median nervules. The last spot is near the middle of the interior margin. The inferiors have a row of three white spots near the centre of the wing; they are half as wide as long. Head, thorax and abdomen same color as wings above, lighter beneath. Described from specimens from Key West, Fla. and Texas in the collection of I. C. Martindale, Esq. This species in color and size may be said to stand between *P. panoquin* and *P. fusca;* being smaller and darker than *panoquin* and larger and lighter than *fusca.* Approaches *panoquin* nearer than any other species, but has fewer and more indistinct markings. Looks very much like *panoquin* beneath.

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On the Genus Anæa Hb. (Paphia Westw.) of Our Country.

By B. Neumoegen, New York.

There is evidently some misunderstanding about the classification of the two species of *Anæa* found in this country. W. H. Edwards, Prof. Scudder and Riley, and other authors have written on it, but the questions have never been satisfactorily settled.

According to W. H. Edwards' "Revised Catalogue," 1884, p. 45, *A.* (*paphia*) *troglodyta* Fabr.

= *astianax* Cr.
= *glycerium* Edw. (nec. Doubl.)
= *andria* Scud.

is found in our Western States, from Illinois to Texas and Neb.

I will herewith prove that the typical *troglodyta* is an insect flying in the Antilles, and that our species should correctly bear the name of *andria* Scud.

Dr. John Gundlach, who is an expert on the Lepidoptera of the West Indies, especially of Cuba and Puerto Rico, has sent

me, repeatedly, in the last fifteen years, specimens identified by him as *troglodyta* Fabr. Dr. Staudinger received of the same specimens, which always proved to be uniform in coloring and appearance, and likewise determined them as *troglodyta* Fabr. Kirby, in his Catalogue, p. 276, gives "Jamaica" as the home of *troglodyta*. In 1888, Dr. Staudinger published that incomparable and beautifully illustrated work entitled, "Exotic Lepidoptera," by Dr. O. Staudinger and Dr. E. Schatz. Rhopalocera by Dr. Staudinger." On pages 177 and 178 of this work, referring to the revision of the genus *Anæa* by Druce, in the "Proceedings of the Zoological Society of London," 1877, Dr. Staudinger says the following :

"The genus *Anæa* is found throughout the whole dominion of the neotropical fauna from Southern Brazil to Mexico and the Antilles, one species even flying in the Southwestern States of the American Union, from Illinois to Texas. The American authors call it *troglodyta* Fabr. If *astianax* Cr., which is always given as a synonym of it, really belongs to it, then it is a similar species, exclusively flying in the Antilles, and this is the reason that Scudder, in 1875, named the North American species *andria* (= Ops. Druce, p. 177, 1877)."

On p. 178 he says:

"In Jamaica is found *A. troglodyta* Fabr., which I received directly from there, as well as from Sommer's collections from Hayti (Port au Prince) and Sta. Cruz. One specimen out of the collection of v. Schenck is marked 'Mexico,' but surely did not come from there, but from the Antilles. This *troglodyta* has a long-drawn, sharply-pointed apex of primaries, and the secondaries sharply dentated from anal angle to tail. The brown primaries in both sexes show beyond the centre a black, dentated, transverse line, and a darker marginal band. *A. andria* Scud. (= Ops. Druce, *troglodyta*, Edwards and Strecker) from the United States, resembles this insect, but the male does not show the transverse line; the female has it, but is in many ways different from *troglodyta*. *A. portia* Fabr., which I possess from Sommer's collections in Hayti (Domingo), as well as from Cuba, I cannot, according to the specimens which I possess, separate as a species from *troglodyta*, although the black transverse line of the male is nearly extinct. According to the descriptions of Fabricius, who gives as habitat of both species 'America,' there

is a slight possibility that *portia* may be the Antilles form and *troglodyta* the North American, but it can never be decided with certainty."

Now, according to what Dr. Staudinger, Dr. Gundlach, W. F. Kirby and Druce, all good authorities, say, on this point, the home of *troglodyta* is the Antilles, and our North American representative is a different insect, which should bear the name of *andria* Scud.

I, for my part, can only add that on a first, even superficial glance, every body can at once see that the West Indian insect *troglodyta* is entirely different from ours. A bright, reddish brown color well marked, transverse lines and bands, the anal part of margin of secondaries, well scalloped and longer tails, show it conclusively.

A. Morrisonii Edw., of which I possess the types, is nearer to *troglodyta* than *andria*, but a smaller insect, of duller brown, and with slight indications only of the transverse line of primaries.

All the European authors have adhered to the name of *Anæa* Hüb., instead of *Paphia*, and I do not see why we should not follow in their footsteps. I, therefore, propose that in the new Check List of North America Lepidoptera the names stand:

Anæa Hüb.

andria Scud.
= *glycerium* Edw. 1871 (nec. Doubl.).
= Ops. Druce, 1877.
Western States, Illinois to Nebraska.

Morrisonii Edw.
Arizona, Mexico.

———o———

ELEMENTARY ENTOMOLOGY.

In studying Lepidoptera it is necessary to have a knowledge of certain anatomical details which can only be learned from inseption and dissection of the specimens themselves. The classification is based on the difference in structure of various parts—as the head, body, legs, antennæ, and venation of the wings. Slight changes in these parts separate them into families, genera and species. Size and coloration are also taken into account, and are good characters, although subject to individual variation.

The Rhopalocera, or Diurnals, are divided into four families: the Nympalidæ, Lycænidæ, Papilionidæ and Hesperidæ. The first family mentioned is the most extensive one, containing the greatest number of species. The butterflies in this family may be distinguished from the others by the structure of the front legs in both sexes, which, on examination, will be found to be aborted or atrophied. The chrysalids of the butterflies of this family are suspended by the tail and hang downward. "Although other families contain butterflies which vie with the Nymphalidæ in lustrous beauty, this largest family contains upon the whole by far the greatest number and variety of striking forms, whether we consider the butterfly, the egg, the caterpillar, or the chrysalis. Moreover, they are the forms which are most commonly seen and noticed by those who have but a popular interest in natural history, for they are the butterflies *par excellence* of the temperate zone, of the region where civilization has most flourished and the praises of Nature have been most sounded by the poets. It is from the transformation of this group of butterflies that ancient mythology has drawn inspiration. The very name chrysalis, the 'golden thing' of the Greeks, was drawn from observation of this family, where alone the pupa often assumes a golden hue. And it is not strange that they should have so observed them, for of all butterflies these are the most spritely and vivacious, the most audacious, most fond of propinquity to man and his cultivations. and endowed with most varied psychological traits."*

The Nymphalidæ are divided into four subfamilies: the Satyrinæ, Euplœinæ, Nymphalinæ and Libytheinæ. These further divisions are characterized as follows: In the Satyrinæ some of the nervures of the forewings are swollen at the base, and the palpi are slender, compressed, heavily fringed with long scale-hairs. In the Euplœinæ none of the nervures are swollen; palpi rather stout, not greatly compressed, the fringe slight, short and delicate; antennæ naked. The Nymphalinæ have the palpi not so long as the thorax; fore legs of both sexes atrophied and imperfect. In the Libytheinæ have the palpi much longer than the thorax; fore legs of male atrophied, of female normal, except in being shorter than the others. The family Lycænidæ is made up of small and delicate butterflies of generally bright color and

* Butterflies of the Eastern United States and Canada.—S. H. Scudder.

delicate wings. The structure of the fore legs this family stands midway between the Nymphalidæ and the Papilionidæ. The fore legs of the female are always perfectly formed, though usually slightly smaller than the middle pair; while those of the male are always more or less atrophied, yet never to the extent that prevails among the Nymphalidæ. The family Lycænidæ is divided into two subfamilies: the Lemoniinæ and Lycæninæ. The Lemoniinæ are distinguished by having the labial palpi minute, only the minute apical joint surpassing the face; fore wings provided with a distinct internal nervure; hind wings scarcely channeled to receive the abdomen, furnished with a precostal nervure, the costal nervure only running to the middle of the costal margin; fore tarsi of male, with rare exceptions, without spines or claws. The Lycæninæ have the labial palpi well developed, porrect, half or more of the middle joint surpassing the face; fore wings with excessively brief, hardly perceptible, internal nervure; hind wings channeled on basal half to receive the abdomen, without a precostal nervure, the costal nervure running nearly to the end of the costal margin; fore tarsi of male armed abundantly beneath and at tip with spines. [This article is largely made up from the excellent treatise on classification in Scudder's "Butterflies of the Eastern United States and Canada."]—Ed.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of Entomological News solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

The following may perhaps be of interest to the readers of the Entomological News, especially to any such as are particularly interested in the Dragon Fly and its life habits. It is concerning the time required for the nymph forms of the larger species of *Æschna* to mature. According to all the writings by entomologists to which I have had access, little is definitely known about this part of the subject. Some of them, and among them Packard claims that two or three years is required for the growth of the nymph from the time it hatches from the egg until the winged form appears. During the past Summer I had an opportunity to settle this

point as far as the species *Anax junius* is concerned. In Franklin Park, in this city (Columbus, O.), a small lake was dug last Winter in a place which was before entirely dry and well drained, and during the last of April and the first of May this lake was filled with water from the city water-works pipes, which I am sure contain do dragon fly nymphs; and on the 30th day of August last, the shores of this artificial lake were literally lined with the exuvia of *Anax junius* nymphs; so they could not have been older than four months at the utmost. I saw the first *Anax junius* flying in the last week of April, and I think I am safe in saying that none appeared much earlier, as I was on a special lookout for them.

PAUL FISCHER, Columbus, O.

CANNIBALISTIC HABITS OF THE CRICKET.—In the "Canadian Entomologist," vol. xxiii, p. 137, Mr. Wm. Brodie cites several cases of cannibalism that came under his notice. My attention was first called to the cannibalistic habits of the cricket some four years ago while bass fishing in the upper Delaware River. Wishing to make an early start, I had taken the precaution to secure my bait the evening previous; part of the bait consisted of about fifty large crickets, which I placed in a good-sized tin-box; the next morning I was surprised to find only thirty-five live crickets in the box, with the legs, heads and other hard parts of the missing fifteen. The day selected for fishing turned out to be a rainy one, so our trip was postponed; the box of crickets was laid aside, and the next morning on examining the contents of the box I was not surprised to find about ten more missing. I now determined to use the remaining crickets for an experiment; I kept the box in my room, and on several occasions on approaching the box very carefully and peeping in, I would be rewarded for my trouble by sights of cannibalism. In a week or ten days I removed the contents of the box, which consisted of some eight or ten large, fat crickets, and an innumerable mass of legs, heads and other hard parts of crickets. In this case it was no doubt the survival of the fittest (or fattest), the stronger overcoming the weaker.—PHILIP LAURENT.

INSECTS BLOCK THE TRACK.—Syracuse, N. Y., May 31st. South of Brighton Corners, between this place and Jamesville, on the D., L. and W. R. R. are extensive limestone quarries, which have been in operation for many years, and have penetrated deeply into the rock. Through the cut thus made, and into the quarries a branch track has been laid from the Lackawanna road for the accommodation of the hewn stone. Night work being necessary, a large part of the time, an arc light has been placed high over the track at the darkest part of the cut.

Several cars were loaded with stone for shipment on Friday and left on the switch, pending the observation of Memorial Day. To-night, in preparation for drawing the cars out, the electric light was cut in and an engine with the necessary crew left from the city for the quarries. Upon reaching the cut the track was found to be covered for sixty feet on either side with strange insects of immense proportions. The swarm was so great that the engine became stallen, the rails having become so slippery

from the crushed insects. Examination of the new insects shows a resemblance to what is known as the electric light bug, though the new comer is much larger.

The outer shell of the back is about the size and shape of half an egg-shell, which, when crushed by the engine wheels, gave out a crackling sound like the explosion of a toy torpedo. The shell is black, of a slatey structure and very brittle. It is supposed to be a species of lithedome—a rock-boring mollusk—crossed with some kind of predatory insects.

To secure the shipment of the freight to-night it became necessary to let the loaded train from above in the quarry come down the grade of the cut. Gathering momentum all the time, its impetus, when it came to the obstruction, carried it by the bugs.—*Boston Daily Traveller.*

Sprayed Grapes are Harmless.—Albany, September 29th. State Entomologist, John A. Lintner, regards the recent activity of New York City's Board of Health as misdirected, and thinks the grape growers and dealers whose grapes were seized and condemned, have a good cause of action against the health officers. He declares that the grapes were not poisoned, and those having the most suspicious spots could have been dipped in a solution of water and vinegar and thoroughly cleansed.

Prof. Lintner says that last Winter he met the grapegrowers of the Hudson Valley, and together they discussed the best methods of killing insects that infest grape-vines, and decided in favor of this Bordeaux mixture. Its only bad feature was that it clung to the grapes after maturity. The mixture contains copper, but in such minute quantities that a person would have to eat a ton of grapes to get enough poison in his system to kill him. Hence he considers the wholesale destruction of the grapes in New York City as foolish in the extreme and not warranted by any consideration for the public health.—*Evening Star.*

"In Nature," notes Mr. R. T. Lewis, on the authority of a correspondent in whose trustworthiness he has entire confidence, gives a curious account of the appreciation with which the song of the *Cicada* is heard by insects other than those of its own genus. The correspondent has frequently observed in Natal that when the *Cicada* is singing its loudest, in the hottest portion of the day, it is attended by a number of other insects with lovely gauze-like, irridescent wings, whose demeanor has left no doubt on his mind that the music is the attraction. The *Cicada*, when singing, usually stations itself upon the trunk of a tree with its head uppermost, and the insects in question, to the number sometimes of fifteen or sixteen, form themselves into a rough semicircle at a short distance around its head. During a performance one of the insects was observed occasionally approach the *Cicada* and to touch it upon its front leg or antennæ, which proceeding was resented by a vigorous stroke of the foot by the *Cicada*, without, however, any cessation of its song. The insects composing the audience are extremely active; and so wary that they take flight at the least alarm on the too near approach of any intruder. Some of them, however, have been captured; and on examination these proved

to belong to the same family as that most beautiful of British insects—the lace-wing fly, which, indeed, they closely resemble, except as to size, their measurement across the expanded wings being a little over two inches; they have since been identified by Mr. Kirby at the British Museum as *Nothochrysa gigantea*.

The Plague of Locusts in Algeria.—Sir Lambert Playfair in his last report on Algerian agriculture remarks on the spread of locusts from the eastern part of the province, to which they had hitherto for the most part confined their ravages, to the central regions. Until the eminent entomologist, D'Herculais, studied the matter carefully, no specific distinction amongst the locust was recognized. He has now shown that there are two species, belonging to separate genera, each of which has very marked peculiarities. These are, the best known or the Biblical species, *Acridium perligrinum*, and the *Stauronotus maroccanus*. Their habits are quite different; the former generally arriving suddenly about April or May, in immense flights, and devastating the green crops. The females penetrate deeply into the moist earth and deposit their eggs, from 80 to 90 in number, enclosed in a cocoon. Two months afterwards the young locusts or crickets are hatched; they grow rapidly, get their wings in 45 days, and then continue their career of devastation far in advance. The other species appear in a winged state in July and August; they also ravage what green exists at that season, and the females deposit their eggs at a much less depth than the others, generally on rocky ground. The cocoons do not contain more than 30 or 40 eggs, and they remain without being hatched till the Spring of the following year. The first species finds in Central Africa the most favorable circumstances for its development; the second, in more temperate countries, such as the Mediteranean region, and even the Caucasus, Crimea and Asia Minor. It is the latter that has ravaged Algeria during the last few years, but about the middle of December last the arrival of flights of the *Acridium* was reported from several of the oases of the extreme south.

Fortunately, man is not the only enemy of the locust. Starlings and Larks feed eagerly on the eggs; wagon-loads of these birds used constantly to be sent to the French market, but now the killing of them has been prohibited in the province of Constantine. The larvæ of the *Bombyx cantharis* and other insects, also get into the cocoons, and often kill from ten to fifty per cent. of the eggs, while minute cryptogamic organisms destroy many more. The best method of contending against the locust has been very carefully studied. Much has been accomplished by ploughing the ground deeply as soon as possible after the eggs have been laid, so as to bring them to the surface, and thus allow them to become an easy prey to birds and insects.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

LEPIDOPTERA HETEROCERA in the British Museum part 8.—Illustrations of typical specimens of Lepidoptera-Heterocera in the collection of the British Museum. The Lepidoptera-Heterocera of the Nilgiri district, by George Francis Hampson, 144 pp. plates 139 to 156. These are fine colored lithographic plates, and contain many figures.

THE ANNALS AND MAGAZINE OF NATURAL HISTORY, vol. viii, No. 45. —Descriptions of two new species of Lycænidæ from West Africa, in the collection of Mr. Philip Crowley, by Emily Mary Sharpe.

MEMOIRS AND PROCEEDINGS OF THE MANCHESTER LITERARY AND PHILOSOPHICAL SOCIETY, 1890–91.—Hymenoptera Orientalis; or, Contributions to a knowledge of the Hymenoptera of the Oriental zoological region, by P. Cameron.

JOURNAL OF THE ASIATIC SOCIETY OF BENGAL, vol. lix, pt. 2, Suppl. No. 2.—Catalogue of the Insecta of the Oriental region. No. 4, Order Coleoptera, Families Dytiscidæ, Gyrinidæ, Paussidæ, Hydrophilidæ, Silphidæ, Corylophidæ, Scydmænidæ, Pselaphidæ, Staphylinidæ. Vol. lx, part 2, No. 1. A list of butterflies of Engano, with some remarks on the Danaidæ, by William Doherty, Cincinnati, U. S. A. New and rare Lycænidæ, by William Doherty.

THE REPORT OF THE STATE HORTICULTURAL ASSOCIATION OF PENNSYLVANIA contains "A pen sketch (with portrait) of Dr. S. S. Rathvon, Professor of Entomology," by T. W. Goding, Rutland, Ill.

ON A BACTERIAL DISEASE by S. A. Forbes, Ph. D. (reprint from the "North American Practitioner," September, 1891.) The paper describes the internal anatomy of the chinch bug *Blissus leucopterus*, and gives an account of the *Micrococcus insectorum* which is found in the alimentary canal. This subject of bacterial disease is a very interesting and important one not only to the economic entomologist, but to the general bacteriologist.

LE NATURALISTE (Paris), Sept. 1, 1891.—Some different galls produced by Acarines on vegetables, by M. Menegaux, figs. Description of a new *Hecatera*, by P. Dognin.

BULLETIN OF THE OHIO AGRICULTURAL EXPERIMENT STATION, vol. iv, No. 5.—This contains an article on the wheat midge, *Diplosis tritici* Kby., by Prof. F. M. Webster. Figures are given of the insect, its stages and anatomy, and a complete history of its ravages, etc., in various parts of the country.

INDEX TO THE KNOWN FOSSIL INSECTS OF THE WORLD, including Myriapods and Arachnids, by Samuel H. Scudder.—This is Bulletin of the U. S. Geological Survey, No. 71. This is a large work of 744 pages, and the author states that he believes it to be practically complete, and says: "With the view of furthering study in the too neglected field of fossil insects, I transmit for publication the card catalogue of described fossil insects which I have used for twenty years, and kept constantly up to date." The great value of this book as a work of reference can be seen at a glance, and all workers in this field as well as entomologists in general, are indebted to Mr. Scudder, whose industry and talent as a writer are phenomenal.

BULLETIN DE LA SOCIETE PHILOMATHIQUE DE PARIS (8), III, 3, 1891.—Patellary Glands of Araneids, by P. Gaubert.

REVUE BIOLOGIQUE DU NORD DE LA FRANCE (Lille), September, 1891.—On the presence of *Cecidomyia sisymbrii* Schk. at Chinon, by Dr. H. Fockeu.

JOURNAL DE L'ANATOMIE ET DE LA PHYSIOLOGIE NORMALES ET PATHOLOGIQUES, etc., xxvii, 3, Paris, 1891.—Abstract genealogy of Arthropods: Determination of the typical forms, (concluded), by A. Segond

ZEITSCHRIFT FUR WISSENSCHAFTLICHE MIKROSCOPIE UND FUR MIKROSCOPISCHE TECHNIK, viii, 2, Braunschweig, 1891.—Methods in embryological researches on insect eggs, by Dr. H. Henking.

COMPTE RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, Aug. 1, 1891.—List of the Carabidæ (order Coleoptera) obtained by Pere Cardon in Bengal, and chiefly from Chota-Nagpore,* by H. W. Bates. Contributions to the Belgian fauna (Hemiptera, Coleoptera), by A. J. F. Fokker. Dichotomous tables for the determination of the Belgian species of Coleoptera Heteromera, by L. Coucke.

BULLETIN DE LA SOCIETE LINNEENNE DE NORMANDIE (4), v, 2, Caen, 1891.—The *Anthonomus* of the apple tree, by E. Lecoeur; 1 pl. The use of tarred bands against the caterpillars of *Chematobia*, id.

ARCHIV FUR NATURGESCHICHTE, lvii, I Bd., 2 heft, Berlin, July, 1891.—The sound apparatus of the Dytiscidæ, by H. Reeker; 1 pl. Description of a hermaphrodite Arthropod, by Dr. P. Bertkau; 1 pl. (a *Lycosa*).

IL NATURALISTA SICILIANO (Palermo), August and September, 1891.—Catalogues of the Coleoptera of Sicily,* by E. Ragusa.

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* Contains new species other than North American.

Le Naturaliste (Paris), No. 110, Nov. 1, 1891.—The tertiary insects of North America from the works of M. Scudder, by Dr. E. Trouessart. The wandering cricket, *Acridium pelegrinum* (concluded), by C. Brongniart.

Jahreshefte des Vereins fur Vaterlandische Naturkunde in Wurttemberg, xlvii, Stuttgart, 1891.—On some *Thrips* injurious to grain, by Dr. E. Hofmann. Roser's Hemipterous fauna of Wurttemberg, published by Dr. T. Hueber.

Anales de la Sociedad Cientifica Argentina, xxxii, No. 1, Buenos Ayres, July, 1891.—*Dyscophus onthophagus*, a new cavern-dwelling cricket from Uruguay, by Dr. C. Berg, No. 2, August, 1891. Argentine Dipterology (Syrphidæ), by F. L. Arribalzaga (to be continued).

Deutsche Entomologische Zeitschrift, Jahrgang 1891, 1 heft, Berlin, June, 1891.—A new Lucanid of the group Cladognathidæ from Java,* On *Sclerostomus fasciatus* Germain, by G. Albers. Description of the larva and the female of *Homalisus suturalis*, by Dr. P. Bertkau; 1 pl. *Cochliophorus* nov. gen. of Meloidæ,* by K. Escherich. List of the Snout Beetles collected near Djizak, Tschimkent and Nauka,* by J. Faust. [Additions] to the list of German beetles,* by K. Fuegner. Collecting notes for 1890, by J. Gerhardt (Coleoptera). Rectification of the hitherto described species of *Castalia*, by Dr. K. M. Heller; *Microcastalia* n. g. Remarks on Herr Wilkins' work on the Cicindelidæ of Turkestan, by W. Horn. *Cicindela inscripta* Zoubk. new to Europe, *Cetonia floricola* var. *Fausti*, *Smaragdesthes subsuturalis* n. sp. from Congo, *Ptyllopertha humeralis* n. sp. from Asia Minor, On the Greek *Trichophorus Schaumi* Cand., On *Diacanthus sulcatus* Cand. from Silesia, On the African Cetonid genus *Stethodesma* Bainbr., On *Tmesorrhina concolor* Westw. and allied species,* On A. Kuwert's Identification table of European Coleoptera, xxii, heft, Heteroceridæ, On the genus *Kraatzia* Fel de Saulcy, The varieties of *Trichius rosaceus* Voet., *T. gallicus* Heer, *T. fasciatus* L., all by Dr. G. Kraatz. Systematic review of the species and genera of Passalidæ, by A. Kuwert. New Coleoptera from Europa, the surrounding countries and Siberia, with remarks on known species, twelfth part, The true Cetonid genera and the species known to me from Europe and the surrounding countries,* by E. Reitter. *Leistus elegans* n. sp.,* by C. Rost. Supplement to the Thuringian beetle fauna, by C. Schenkling. Sixth contribution to the knowledge of the German beetle fauna, by J. Schilsky. Revision of the palaearctic species of the Elaterid genus *Agriotes* Eschsch.;* 2 plates, Two new Elaterids from Syria and Madagascar, by O. Schwarz. A new East African Cicindela, by A. Srnka. *Brumus trivittatus* n. sp. from the Suaheli coast, *Trachodius tibialis* n. sp. from Macugnaga, Known and new Chrysomelidæ from Spain I, How many species does the genus *Sclerophædon* contain?, On varieties of *Phytodecta*, all by J. Weise.

* Contains new species other than North American.

Entomologische Nachrichten, xvii, 17, Berlin, September, 1891.—*Osmia* studies,* by H. Friese; figs. Two new South American Libellulidæ, by Dr. F. Karsch; *Platyplax* n. gen. *Pimpla* species from Norderney and three new varieties,* by C. Verhoeff. No. 18, Sept. 1891. Criticism of the system of the Aeschnidæ,* Dr. F. Karsch.

Le Naturaliste (Paris), Sept. 15, 1891.—Description of a new Lepidopter,* by P. Dognin.

Species des Hymenopteres d'Europe et d'Algerie fonde par Edmond Andre et continue sous la direction Scientifique de Ernest Andre, 39e Fascicule, July 1, 1891, forming pp. 1–88 of tome vi, Chrysides,* by Robert du Buysson; 2 plates. 40e Fascicule, Oct. 1, 1891, forming pp. 57–136 of tome v; 2 plates.

Archives de Zoologie Experimentale et Generale, 2e Serie, ix, 3, Paris, 1891.—Studies on the blood and the lymphatic glands in the animal series (second memoir), by L. Cuenot; plates. This memoir includes the insects.

Bulletins de la Societe Zoologique de France (Paris), xvi, No. 1, January, 1891.—An error of the senses in a Lepidopter, by Dr. R. Blanchard.—No. 2, February. On the Pseudo-parasitism of the larvæ of *Culex pipiens*, by Dr. R. Blanchard. New or little-known Diptera [*Hæmatopota*], by J. M. F. Bigot.—No. 4, April. List of the Arachnids collected by M. Ch. Rabot in western Siberia in 1890, and Descriptions of some Arachnids from Costa Rica from M. A. Getaz, of Geneva, by E. Simon; *Cupiennius* n. g.—No. 6, June. Descriptions of two new species of Arachnids collected by Dr. R. Blanchard in the Sahara,* by E. Simon.

Memoires de la Societe Zoologique de France, iv, 1, 2, 1891.—Coleoptera collected in the Azores by M. J. de Guerne during the voyages of the yacht "Hirondelle" (1887–88), by C. Allaud.

Memoires de la Societe des Sciences Physiques et Naturelles de Bordeaux, 3e Serie, v, 2, 1890.—Hermann Mueller and the coloration of the collecting apparatus of bees, by M. J. Perez.

Nouvelles Archives du Museum d'Histoire Naturelle (Paris), 3e Serie, II, 2, 1890.—The collection of insects formed in Indo-China by M. Pavie, French consul at Cambodia: I Coleoptera, Cebrionidæ, Rhipidoceridæ, Dascillidæ,* and Malacodermidæ,* by M. J. Bourgeois; Clytidæ* and Eumolpidæ,* by E. Lefevre; Diptera,* by J. M. F. Bigot.

Atti della R. Accademia delle Scienze di Torino, xxv, disp. 9a, 1889–90.—Diagnoses of some new species of Diptera,* by Dr. E. Giglio-Tos.

Entomologische Nachrichten, xvii, No. 19, October, 1891.—List of the Sphingidæ collected by Dr. Paul Preuss at Barombi Station in Cameroon,* by Dr. F. Karsch; 1 plate. Tryphonid studies,* by Dr. Kriechbaumer.

* Contains new species other than North American.

Zoologischer Anzeiger (Leipzig), Aug. 31, 1891.—On the embryology of insects, by V. Graber.

Morphologisches Jahrbuch (Leipzig), xvii, 3, 1891. On the morphological significance of the ventral abdominal appendages of insect embryos, by V. Graber; figs.

Verhandlungen der k. k. Zoologisch-botanischen Gesellschaft in Wien, xli, Bd., I Quartal. April, 1891.—Additamenta to the monograph of the Phaneropteridæ,*† by C. Brunner v. Wattenwyl; 2 plates; a paper of 196 pages, describing many new genera and species. On noteworthy forms among Acarids,* by Dr. L. Karpelles, 6 zincographs.

Compte Rendu. Societe Entomologique de Belgique, Sept. 5, '91. —Curculionidæ and Brenthidæ from western Bengal, collected by R. P. Cardon, with descriptions of new species,*† by M. J. Desbrochers des Loges. Melanges Entomologiques: V. Diagnoses of Coleoptera from the Congo.*† VI. Diagnoses of Phytophaga from Madagascar,* by A. Duvivier. Third Dichotomous table to aid in determining Belgian species of Coleoptera Heteromera, by L. Coucke.

XXXVI und XXXVII Bericht des Vereins fur Naturkunde zu Kassel, 1891.—Lepidopterology: On the local fauna of Cassel and vicinity, by L. Knatz. Observations on the development history of *Coleophora gryphipennella* Hbn., by Dr. H. F. Kessler. The development history of *Tribolium ferrugineum* Fab., ibid.

Verhandlungen des Vereins fur Naturwissenschaftliche Unterhaltung zu Hamburg, 1886–90. Hamburg, 1891.—Contributions to fauna of the lower Elbe: New and rare beetles, by T. Wimmel and R. Niemeyer; On beetles imported with drugs, by T. Wimmel; Additions to the list of macrolepidoptera of the lower Elbe, by J. C. H. Zimmermann; On the occurrence of *Panthea cœnobita* in this locality, by H. Burmeister; On *Plusia illustris*, by R. Schmidt; My prey at Eulen in 1890 [Lepidoptera], by G. Jaeschke; Additions to the Lepidopterous fauna of the lower Elbe, by A. Sauber; The Lepidopterous fauna of Horn and vicinity, by A. Junge; Entomological brevities [Lepidoptera], ibid.

Doings of Societies.

A Regular Stated Meeting of the Entomological Section of the Academy of Natural Sciences was held Sept. 24, 1891, at the hall S. W. cor. Nineteenth and Race Streets, Dr. Horn, Director, presiding. Meeting called to order at 8.20 P.M. Members present: Martindale, Cresson, Welles, Ridings, Skinner and Laurent. Associates: Bland, Seeber, Westcott, Fox, Liebeck, Johnson, Dr. Castle and Haimbach. Mr. Martindale spoke of the great scarcity of Lepidoptera during the past

* Contains new species other than North American. † Contains new genera.

Summer, both in the field and at the electric lights. He had caught two specimens of *Terias nicippe* and a female of *Pamphila campestris* in Fairmount Park. Both of these species are rare here, the latter being exceedingly rare. Dr. Castle stated that he had visited his old locality for *Blaps similis* at Alexandria, Va., and had not found any owing to trenches having been dug in the immediate neighborhood and filled with boiling water. Mr. Welles had found *Lycomorphus pholus* very abundant at Elwyn, Delaware County, Pa. Dr. Skinner exhibited the insects collected by Mr. Mengel and Dr. Hughes on the west coast of Greenland. There were about 25 specimens of Hymenoptera, 166 Diptera, 8 Coleoptera, 106 butterflies and 143 moths. Mr. Seeber exhibited and presented 260 Hymenoptera, 65 Diptera and 2 Neuroptera, all taken in and around the city. He had found that in using a cyanide bottle that constantly opening it greatly deteriorated its killing qualities, and in the future he intended to try ether, as he could then replenish the killing bottle with ether when necessary. Dr. Horn said that his work on *Agrilus* was finished, and he exhibited all the known species of our faunal limits, 54 species all told, 22 of which were described as new. He had dealt with but one unique; most species were exceedingly well represented. They are readily separated into groups by pretty good characters. Some of the characters noted and described were new. He also stated that he had recently been studying *Amara* and some other things. Mr. Westcott spoke of the good luck he had had in collecting moths at sugar, etc., but had found diurnals very scarce. Mr. Nathan Banks, of Washington, was proposed as an associate of the Section.—H. SKINNER, *Recorder*.

OBITUARY

EDWARD W. JANSON, died in London, Sept. 14, 1891, aged 69. He was especially known to entomologists as a dealer in insects, boxes and appliances. While he possessed skill and judgment as an entomologist, he has written but little, preferring to devote his talents to the assistance of others. He possessed what is probably the best collection of Elateridæ known, having acquired the first typical series from Dr. Candéze by purchase. His library was very full, and was especially rich in pamphlets.

ENTOMOLOGICAL NEWS for October was mailed September 29, 1891.

HARMA SANGARIS.
LEPTOCIRCUS CURIUS.
COLIAS CÆSONIA.

PREPONA DEMOPHON.
GONEPTERYX MÆRULA.

CALLITHEA SAPPHIRA.
HELICONIUS CHARITONIA.
CATAGRAMMA PITHEAS.

A SUGGESTION FOR A POSSIBLE METHOD OF IDENTIFYING THE COLORS PHOTOGRAPHED.

NEGATIVE BY JULIUS F. SACHSE.

IVES' PROCESS, ENGRAVED BY CROSSCUP & WEST.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. II. DECEMBER, 1891. No. 10.

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Our illustration represents some butterflies which were photographed to see if the colors could be identified by a color key. The possibility of this has been investigated by Mr. J. F. Sachse, editor of the "American Journal of Photography," who read a paper on the subject before the Photographic Society of Philadelphia entitled, "A Suggestion for a Possible Method of Identifying Colors Photographed." It can readily be seen how useful such a method would be in the illustration of Natural History objects.

We quote from the paper above referred to "The production of orthochromatic or color-stained plates, which will yield negatives or prints giving approximately true color values is at present one of the active problems of the photographic world, attracting the attention of specialists and active researchers in almost every country." Ever since the orthochromatic principle was first broached, the hope was fostered that by some means, in addition to giving true color value, it would become possible to find a method to distinguish or identify by the print the colors of the original. "In connection with this subject I wish to bring to your notice a suggestion for a simple method by which this much desired object may be obtained, at least under certain conditions in suitable subjects. The suggestion, as you will see, is simply

to photograph a color key along with the subject, which shall explain itself. The first picture, a print of eight butterflies, selected on account of their varied colors, which comprised lemon-yellow, brilliant blue, blood-red, orange, bright red and black.'' The colors of the key are marked with letters which identify the colors, and by comparing the key with the colors of the print, the colors of the butterflies may be determined. We only have sufficient space to quote a few sentences from this interesting paper of Mr. Sachse, and will merely state that the paper attracted great attention, both here and abroad, and it has been translated into several languages and reprinted in some of the English photographic journals. This plate, like others we have published, was made by the Crosscup & West Company of Philadelphia, and we are indebted for the loan of the plate to the kindness of Mr. Sachse.

———o———

The Sphingidæ of Colorado.

By David Bruce.

1. *Hemaris* sp. ?—A small species, is not uncommon among yellow flowering *Ribes* in May and early June, near Denver and just in the foothills; it is very like *H. rubens* H. Edw., but is smaller; it agrees pretty well in size and color with Mr. Strecker's description of *H. senta*, and may be that species.

2. *Hemaris Brucei* French.—On blossoms of *Mertensia* in July, above 10,000 feet elevation near South Park; not common.

3. *Lepisesia flavofasciata* Barnst.—On flowers of *Ribes* in June, same places as last species; have taken the larva and bred it; it feeds on *Epilobium* in August; not common.

4. *Lepisesia Clarkiæ* Bdl.—Not rare in western Colorado in June; very partial to flowers of *Phlox* and allied plants, and when thus engaged, easy to capture.

5. *Amphion nessus* Cram.—Not uncommon in Clear Creek and Platte Cañons below 6000 feet elevation; fond of damp places by the sides of irrigating ditches, frequently alighting on mud; this habit I have not observed in any other of the Sphingidæ.

6. *Deilophila Chamoenerii* Harr.—Common throughout Colorado and frequent at light; I have found the larvæ on *Epilobium*.

7. *Deilephila lineata* Fab.—Abundant everywhere, flying by

day and night; I have found it on the mountain tops at 14,000 feet elevation, the larvæ sometimes occurring by thousands on low plants near north Denver in boggy places.

8. *Chærocampa tersa* Linn.—One example only, found on a window in the Union Depot, Denver, probably attracted by light.

9. *Philampelus achemon* Dru.—Larvæ very common on *Ampelopsis* and Grape from Denver City to about 7500 in the Cañons; the moth occasionally at light.

10. *Dilophonota ello* Linn.—Not rare at light from Denver to Utah, all I have taken in Colorado are rather light colored.

11. *Protoparce celeus* Burm.—Common all over the State, apparently getting more abundant every year, June and September, probably a part of the larva give moths the same season.

12. *Protoparce carolina* Linn.—Occasionally at light (Denver).

13. *Sphinx drupiferarum* S. & A.—Very common at light all over the State; the large form (var. *utahensis* H. Edw.) frequently in central and western Colorado; larvæ common on wild plum.

14. *Sphinx perelegans* Hy. Edw.—Uncommon at light in central and western Colorado; my examples are larger than California specimens.

15. *Sphinx vashti* Strecker.—Not rare; I have taken it wherever I have collected in the State east or west; varies in size and color. I have them from 2½ inches to 3⅝ inches in extent. I am not surprised that it has received several names.

16. *Sphinx gordius* Cram.—Not rare in central and western Colorado. I have never taken it near Denver; Colorado examples are very large (I have some extending four inches) and show the soft warm color of *luscitiosa*.

17. *Sphinx luscitiosa*.—Not very rare; at light and over flowers in the evening in Denver City. I have also taken it flying by day over flowers.

18. *Sphinx oreodaphne* Edw.—Common in central Colorado. Mr. Hy. Edwards saw several of my examples and identified them as the form he had so named; the Colorado specimens are a clear gray, with fine markings, and extend 3¼ to 3¾ inches. I have seen nothing in Colorado like the eastern *chersis*.

19. *Sphinx coloradus* Smith.—Not very rare in western Colorado. I have beaten it from Cedars and taken it at light. It is so variable in size and distinctness of markings that I think *S. Dollii* Neum. may be a small form of this species.

20. *Sphinx lugens* Wlk.—At light and over flowers at dusk; not uncommon round Denver.

21. *Triptogon occidentalis* H. Edw.—Common throughout the State; larvæ frequent on Poplars of any species. I have bred a great number; they are easily reared from the egg; have fed them on Cottonwood, in Denver, until half grown and then brought them home to New York State and gave them Willow until full-grown, with no evil result. *Smerinthus imperator* Strecker, if not a true species, deserves its name. This form is very robust, and the markings very distinct and high colored. I found a full grown larva on Cottonwood in August; it was very dark green compared with the larva of *occidentalis* (of which I had at the time many feeding) and larger than any I had before met with; this larva pupated, and, to my surprise, produced an imago, in September the same year, of the *imperator* form; it was a ♀ 5¼ inches in extent of wings. I have a ♂ precisely of the same stamp taken in west Colorado measuring 5½ inches in expanse. I have a series of the ordinary *occidentalis* form, all selected for their good size and color, and the difference between these and the *imperator* form is obvions enough.

22. *Smerinthus geminatus* Say.—Rather common throughout the State; the late brood has pale upper wings and the rose color on under wings is very bright.

23. *Smerinthus astarte* Strecker.—This insect is rather common on trunks of Cottonwoods and comes freely to light; it varies interminably in size, coloration and outline of upper wings. I have bred quite a number from the eggs, and occasionally found the full grown larva on *Populus angustifolia*, and in confinement it thrives best on that tree.

24. *Paonias excœcatus*,—Occasionally comes to light, but is not common; all I have seen are high colored.

25. *Paonias myops*.—Common throughout the State, comes freely to light and the larvæ frequent on Choke Cherry. I have not seen eastern examples so brightly colored as some I found in western Colorado.

There are decidedly two generations of the last four species every year.

The damage to the cereal crops in Canada by insects has been estimated at $38,000,000.—(*Newspaper Entomology.*)

Synonymical Notes in Spiders.

By NATHAN BANKS.

DRASSIDÆ.

Anyphæna rubra Em. = *A.* (*clubiona*) *gracilis* Hentz.
Pythonissa sericata Koch. = *P.* (*herpyllus*) *bicolor* Hentz.

AGALENIDÆ.

Amaurobius sylvestris Em. = *A.* (*ciniflo*) *bennetti* Blk.

THERIDIDÆ.

Theridium brassicæ Fitch = *T. frondeum* Hentz.
Theridium hypophyllum Fitch = a ♂ *Dictyna.*

As it cannot be farther identified it may be dropped from the lists.

Erigone zonaria Keys = *Bathyphantes micaria* Em.

EPEIRIDÆ.

Epeira decipiens Fitch = *E. displicata* Hentz.
Epeira canadensis Blk. = *Cyclosa conica* Pallas.
Epeira approximata Blk. = *E. trifolium* Hentz.
Epeira rubella Hentz = *E. directa* Hentz.
Epeira spiculata Hentz = *E. placida* Hentz.
Tetragnatha armigera Blk.

This is probably *T. laboriosa* Hentz; it certainly does not pertain to anything different from *T. grallator*, *T. extensa* and *T. laboriosa*, and so may be dropped from the lists. It cannot be recognized as different.

LYCOSIDÆ.

Lycosa nidicola Em. = *R. babingtoni* Blk.
Lycosa maritima Hentz = *Trochosa cinerea* Fab.
Pardosa albopatella Em. = *P* (*Lycosa*) *minima* Keys.
Pardosa nigra Stone = *Aulonia?* (*Lycosa*) *funerea* Hentz.

ATTIDÆ.

Icius vittatus Keys = *Icius mitratus* Hentz.
Salticus sundevalli Blk. = *Marptusa familiaris* Hentz.

In my paper on "Hentz Spiders" in ENT. NEWS for May, 1891, *Dendryphantes capitatus* (Hentz) Peck. and *D. octavus* Hentz were so printed as to appear as distinct species; whereas, as might be observed from the text, it was intended that the former should stand as a synonym of the latter.

HYMENOPTEROLOGICAL NOTES.—I.

By WILLIAM J. FOX, Phila., Pa.

Larra aurantia n. sp.

♀.—Black, the abdomen orange. Head and thorax with exceedingly fine, even punctures; front with a faintly impressed line, which begins at the base of antennæ and extend to the anterior ocellus, beginning again from a strong curved foveæ, behind the posterior ocelli, it extends to the top of the vertex; the space between the ocelli much swollen, with a deep, curved sulcus on each side, which almost connects with the foveæ behind the posterior ocelli; the face somewhat excavated on each side, behind the base of the antennæ; the anterior portion of the clypeus shining, strongly punctured, with a transverse furrow before its margin, which has an exceedingly slight tooth each side just before its lateral angles; eyes strongly converging towards the top, the distance between them at this point barely equal to the length of the second and third antennal joints united; antennæ shorter than head and thorax together, tapering to the apex, flagellum brownish, with a microscopic pile; scape short and stout, narrowed one-half towards the base, in length about equal to the third antennal joint, this latter joint is about four times longer than the preceding one, and about equal to the following joint, the fifth and sixth joints longest; scutellum and post-scutellum with a very faint medial impressed line; metathorax above finely roughened, with a few indistinct, longitudinal striæ at the base, the posterior face more strongly roughened, with a distinct medial sulcus, which is broadest basally, the furrow not reaching to the apex; wings fusco-hyaline, nervures dark, the distance between the first transverse-cubital nervure and the first recurrent nervure is greater than the space between the first and second recurrent nervures on the cubital nervure. Legs black, finely punctured, the tibial spurs and the tarsi ferruginous; posterior femora within glabrous. Abdomen orange, the apical margins of the segments subopaque, beneath it is marked with dark blotches; pygidium with a few scattered punctures, towards the apex with sparse, bright hairs. Length 14—15 mm.

Two specimens; Montana.

Larra punctifrons n. sp.

♀.—Black, slightly shining; sides of the face and thorax with sparse, silvery-sericeous pile. Head and thorax with fine, even punctures, more fine on the cheeks and pleuræ; clypeus strongly convex, the posterior half finely punctured and subopaque, the anterior half polished, and with large scattered punctures, a transverse furrow before the anterior margin, the latter being polished and entire; front bituberculate above the antennæ; a distinct impressed line begins immediately behind the tubercles and extends to the lower ocellus, beginning again behind this ocellus, it passes up through a strong swelling between the posterior ocelli to the base of the occiput, behind the posterior ocelli there is a strong foveæ; eyes strongly converging towards the top, the distance between them at this

point is equal to the length of the scape and second antennal joints united; antennæ shorter than head and thorax together, tapering to the apex, the third joint shorter than the fourth, which is slightly longer than the fifth joint; scape much narrowed to the base, punctate beneath; dorsulum with a longitudinal depression on each side near the tegulæ, the latter as well as the apical portion of the tarsi, rufo-testaceous; metathorax above very finely granulated or shagreened, with a slight, polished, longitudinal line medially; tibiæ and tarsi strongly spinose, the inner side of posterior pair clothed with dense, sericeous pile. Wings with a slight yellowish tinge, nervures brownish, the distance between the first recurrent and the first transverse-cubital nervure is distinctly less than the breadth of the second submarginal cell at the top, and is about equal to the space between the first and second recurrent nervures on the cubital nervure. Abdomen smooth, the apical margins of the segments obscurely rufo-testaceous, the first three segments with a silvery, apical band; pygidium shining, convex, with sparse, large punctures; beneath, the abdomen has a few stiff hairs. Length 12 mm.

This species has a wide range, as I have one from Camden County, N. J., taken Sept. 12, 1891, and two others from Montana. Resembles *L. pennsylvanica*, but the metathorax is not striated as in that species. I think, however, it is more closely related to *L. acuta* Patton.

Trypoxylon ornatipes Mihi.

T. ornatipes Fox, Trans. Amer. Ent. Soc. vol. xviii, p. 148, 1891.

The original description of this species was drawn up from a very dirty specimen, and as I have since received a fresh example from Mr. C. W. Johnson, collected in the vicinity of Philadelphia, I am able to detect several characters not mentioned in the first description, viz.: beginning on the apical portion of the sixth joint the antennæ are distinctly thickened, this is also the case with joints 10–12, these joints being stouter than joints 6–9, the second antennal joint is larger than the third, the latter being a little more than half as long as the fourth joint; the space between eyes at the top is broader than the length of the three first antennal joints united. All the legs in this specimen are yellowish. In line 10 of the previous description for mesonotum read metanotum.

Steniolia duplicata Prov.

S. duplicata Prov., Add. Hym. Queb. p. 414, ♀♂. Nov., 1888.

S. scolopacea Hdl., Sitz. k. Akad. Wiss. Wien. xcviii, p. 510, ♀♂. '89.

I can see no reason why *duplicata* and *scolopacea* should be separated. I have specimens which agree with the descriptions

of both authors, and with the figure of *scolopacea* given by Cameron (Biol. Cent. Amer. Hym. ii, pl. 6, fig. 11). As Handlirsch makes no mention of *duplicata* in his monograph, it is evident that he either did not see the description at all, or that he received it too late to have it included in his work.

Miscophus americanus Mihi.

Since describing this species, which was founded on a single specimen, I have taken ten additional specimens, among which were, fortunately, several males. These latter are slightly smaller than the females, and differ otherwise as follows: the posterior face of the metathorax with irregular, strong, transverse striations, with a strong medial sulcus, which begins from a strong foveæ; the marginal cell is subangular beneath. Length 3–3.5 mm.

Gorytes microcephalus Handl.

Described originally from Georgia. I have two specimens from Camden County, N. J., June 28, 1891. This will probably prove to be the male of *G. nebulosus* Pack.

Gorytes floridanus.

Hoplisus foveolatus Fox (nec. Handl.), Entom. News, vol. i, 1890.

I propose the name *floridanus* for this species, as *Hoplisus* and *Gorytes* have been merged into one, and there being a *Gorytes foveolatus* described in 1888.

Agenia caliptera Say.

This species described as *Pompilus*, belongs to *Agenia*. I have two specimens from Philadelphia and Camden County, N. J., June 28, 1891, respectively, which agree with Say's description. Mr. Cresson, in his "Notes on the Pompilidæ," doubtfully referred this species to *Agenia*, but as he did not see any specimens this note verifies it.

(To be continued.)

———o———

ELEMENTARY ENTOMOLOGY.

LEPIDOPTERA.

The next family to be considered is the Papilionidæ. It consists mostly of quite large species which are found all over the world, and they may be known by the front legs of both sexes being perfect and always used in locomotion. Quite a number

are provided with a lanceolate appendage upon the fore tibiæ, but this also occurs in the Hesperidæ. The caterpillars are naked, and the chrysalis is attached by the tail and has a loose girth around the middle and the head points upward. The family is divided into the Papilioninæ and the Pierinæ, and they may be separated as follows: In the Pierinæ the antennæ are straight, median nervure of fore wings with three branches, hind wings partially enclosing abdomen, fore tibiæ with no epiphysis, claws bifid. The Papilioninæ have the antennæ more or less arcuate, median nervure of fore wings with four branches, hind wings not enclosing the abdomen, fore tibiæ with a distinct epiphysis on the inner side, claws simple and long. The last family, the Hesperidæ, are generally small butterflies, and sombre in appearance. The body is robust, and the head broad, the antennæ are widely separated at the base and curved or crooked at the tip; their flight is peculiar, and they are often called "skippers" on account of its jerky character. When at rest the front pair of wings are more elevated than the hind pair, and this gives them an odd and characteristic appearance. The character of the antennæ, their peculiar flight and the drooping of the inferior wings enable this family to be readily recognized. The Hesperidæ are well represented in this country, but their true home seems to be tropical America, where the species are very numerous.—Ed.

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A Tachinid Parasite of Chrysophanus dione. Exorista chrysophani n. sp.

By C. H. Tyler Townsend, Las Cruces, N. Mex.

The following is a description of a *Tachinid* received from Mr. Chas. W. Johnson, of Philadelphia, and which bears the label: "From chrysalis of *Chrysophanus dione* June 9, Iowa."

Generic characters.—Eyes thickly hairy; front and face of ♀ about one-third width of head, which is a little wider than the thorax and abdomen; frontal bristles extending a little below base of antennæ; two orbital bristles in ♀. Antennæ about as long as face; second joint hardly elongate, third joint two or three times as long as second; arista thickened half its length, microscopically pubescent, distinctly 3-jointed, the second joint quite strongly elongated; front hardly prominent, face receding; sides

of face bare, rather narrow, facial depression much widened below; facial ridges bare, except a few weak bristles above vibrissæ, the latter inserted well above the oral margin; cheeks narrow, hairy on lower portions. Proboscis withdrawn, short, fleshy, labella well developed; palpi very distinct, considerably thickened at tip. Abdomen not wide, short, oval or elliptical, first joint hardly shortened; macrochætæ only marginal, except on anal segment. Legs not long; metatarsi nearly as long as following joints; hind tibiæ with fringe of bristles on outer edge. Wings longer than abdomen, not wide, without costal spine; apical cell narrowly open, ending well before tip of wing; fourth vein bent at an obtuse angle, without stump or wrinkle; hind cross-vein nearer to bow of fourth vein.

Exorista chrysophani nov. sp. ♀.—Black, silvery. Eyes brown; front, face and cheeks silvery, the front shading to brassy or golden; frontal vitta about one-fourth width of front, black or dark brown, fringed behind; antennæ and arista wholly black, second antennal joint bristly; cheeks cinereous and hairy on lower portions, with some bristles on lower border; proboscis and palpi black, or brown; occiput cinereous, gray hairy, with broad black band from vertex to center, fringed with black hairs on orbital margins. Thorax cinereous, or silvery pollinose, hairy and bristly, with three narrow, well defined, median black vittæ, and a heavier interrupted one outside them; scutellum ochreous, blackish at base, with an apical decussate pair of macrochætæ and three lateral pairs. Abdomen covered with short black bristles; first segment entirely black, without macrochætæ; second and third segments shining black, broadly silvery at base with a brassy tinge; second segment with a median marginal pair of macrochætæ and a lateral one; third segment with a marginal row, six or eight of which are on upper surface; anal segment shining jet black, very narrowly silvery at base, armed with macrochætæ and bristly hairs. Legs black, femora slightly silvery, femora and tibiæ bristly; claws and pulvilli short. Wings grayish hyaline, third vein spined at base; hind cross-vein sinuate; tegulæ tawny white, borders darker; halteres fuscous. Length 5.5 mm.; of wing 4.5 mm.

Described from one specimen; Iowa.

Mr. Johnson writes: "Two specimens were given to me by Dr. Skinner. They are from Iowa, and came out of the chrysalis of *Chrysophanus dione*, the larvæ having been sent to Dr. Skinner by Mr. Henry G. Willard. I infer, therefore, that they were accidentally bred by Dr. Skinner. I had at first thought it necessary to describe this form as a new genus, but subsequent reflection has induced me to locate it in *Exorista*, from which it

differs appreciably only in the elongate second aristal joint, and the vibrissæ being inserted at a short distance above the oral margin. Besides, Messrs. Brauer and von Bergenstamm have erected several new genera which are founded on practically the same characters."

———o———

A NEW GENUS AND SPECIES OF ODONATA FROM JAMAICA.

By Philip P. Calvert.

ORTHOLESTES n. gen.

Wings ceasing to be petioled just before the first postcostal cross-vein. Median sector arising from the principal at less than one-third the distance from the arculus to the nodus, the subnodal one cell after the median. Quadrilateral distinctly trapezoidal, superior side longer than one-half the inferior, internal side one-third to one-fourth the inferior. Ultra-nodal sector unbroken, or but very slightly angulated; subnodal and short sectors hardly more angulated. Nodal sector arising from two-and-a-half to four cells after the nodus. No supplementary sectors between the median and short sectors. With supplementary sectors, forming an irregular network (7–16 marginal cells), between the subnodal and median sectors. Pterostigma three times as long as broad. Hairs of the feet long.

O. clara n. sp.—Abdomen ♂ 38 mm., ♀ 29–31. Hind wing ♂ 29, ♀ 25–27. Yellow and dark brown or black. Labrum, epistoma and frons, dark metallic blue. Abdomen dark brown, 3–7 with a yellow basal ring; 17–23 postcubitals.

♂.—Superior appendages forcipated, dilated to form two rounded, inferior ante-apical teeth. Inferior appendages half as long.

♀.—Appendages longer than the last segment. Dorsal apical half of 9 bright yellow.

Described from one ♂, one ♀ from Kingston, Jamaica, May, 1890, by Mr. E. M. Aaron, to whose kindness I am indebted for them; one ♁, Kingston, by Mr. Wm. J. Fox, (Amer. Ent. Soc. coll.); one ♀, Jamaica, Mr. Charles W. Johnson (Wagn. Ins. coll.).

This interesting form belongs to the Legion *Lestes* Selys. A detailed description will appear later.

A CONJECTURE.

By CHARLES C. CRESSON, Germantown, Phila., Pa.

In reading of the immense congregations of Butterflies, that sometimes have been observed in the Fall of the year, it is an interesting subject for reflection as to *the Divine intention* in endowing them with the instinct of collecting together, and the purpose intended to be carried out. This habit of immense congregations is not confined to Butterflies, but is to be observed in an unknown number of other animals. Our American Buffalo, or Bison, collect in very large herds at a certain season of the year, as Catlin relates, for the purpose of continuing the species; and when so collected, the bulls forthwith commence to struggle and fight with each other, the stronger conquer the weaker ones, and then choose such mates as please them. The large congregation then separates into little family groups, each with its own masculine head, and so enters on to the business of multiplication and addition, and then remains in peace and quiet until the next annual return of the season for reassembling—A clear and manifest instance of the "Survival of the Fittest," the most powerful bulls continuing the species, and many of the weak ones being killed or disabled. The Wolves congregate in packs for mutual assistance, then prowl around these herds and families, hunting for something to devour; and when they find a stray Buffalo, too much alone for its own good, they attack him, her, or it (the calf), as the case may be, and breakfast, or dine, on their prey (as described by Catlin).

The Norwegian Lemming, as described in the "Encyclopedia Brittanica" and elsewhere, occasionally migrate in great numbers, pursuing their course in a straight line, regardless of every obstacle, and consuming everything eatable in their way (Baird). Their usual course is from the East to the West; they swim over rivers and lakes until they arrive at the Atlantic Ocean; then they continue to follow their leaders, plunge together into the ocean and swim out to sea; they never swim back again, but all are drowned in the mighty waters. On their journey from their home to the ocean (which lasts sometimes for over a year) they procreate and largely increase the congregation. The young and old keep straight on, and all perish in the company of each other.

At the home they have left, remains a sufficient number to get up another exodus in due season ("Encyc. Brittanica" condensed).

We thus see that the Buffaloes congregate for procreation; the Wolves for mutual assistance in hunting, and the Lemmings to search for food, when the supply at home is insufficient for their support.

Zoölogy, as a part of animal history, gives us accounts of similar congregations and migrations of other animals, congregating and migrating together, for different reasons. Swallows, Cranes, Blackbirds, Reedbirds and Pigeons, going North or South, according to the season, to avoid the cold. Wild Ducks and Geese going North to procreate, in seclusion, where their great enemy, man, is at a distance, and where their food is in abundance.*

Some kinds of caterpillars, in their migrations, in passing over our railroads in the far West, have so anointed the rails with their carcasses, crushed by the passing wheels, as to impede the progress of the trains. The great herds of Buffaloes, at the times of their congregations, have sometimes also seriously impeded the progress of the railroad trains. This may have been one reason for destroying and exterminating the Buffaloes. Another reason appears to have been the desire to weaken the Indians by destroying their food. The profit accruing from their hides and horns was, no doubt, another reason. These three principal interests being in conjunction, the Buffaloes had to go.

Now, in view of the above facts, or supposed facts, it becomes an interesting Conjecture as to what is the Divine intention in endowing animals with such destructive instincts. The Human animals in their instinctive struggles as to procreation, food, homes and other worldly possessions, proceed to congregate into armies, with their weapons of war, and so proceed, with all conceivable craft and force, to thin out the human crop on the earth, in their struggles with each other (just as do the Buffaloes), and

* In the park of Schloss Ruhleben, according to a local correspondent of a Berlin journal, a Stork set up his house some years ago, and regularly every Spring has returned to his nest, along with his "wife." There was a doubt expressed last year whether it was the same bird who returned year after year. In order to prove the matter, a steel ring was fastened around the left leg of the male Stork, and the name of his European residence engraved upon the ring. When the Stork again appeared this present Spring, he had a ring on each leg. His human friends in his Eastern home had fastened a silver ring to his right leg, and on it was engraved the inscription, "India sends her greeting to Germany." —*Christian Intelligencer.*

thus obtain elbow room for the survivors. In the "Survival of the Fittest," history tells us that the *fittest* is the party best qualified to kill (not to cure) and to destroy (not to build up); and so civilization suffers.

Now, to speak on the subject of *the Conjecture*. Of the Butterflies that congregate on the coast, some are probably blown from thence out to sea to become food for fishes; some remaining on the land become the food of birds, or are otherwise destroyed, and so leave few or none as successors to continue the species. It may be the Divine intention thus to reduce the superabundant number of Butterflies so that the food, provided in the ordinary course of nature, will be sufficient for those left behind. If the proper food were scanty or absent in the localities where the great swarms of Butterflies deposited their eggs, the young products of the eggs would not be able to carry on their usual changes, and would die of starvation. And so the continuity of the species be discontinued so far as they would be concerned, as a result of a superabundance of larvæ, to the supply of food.

As to the sea-going instinct of the Lemmings, it appears as if no other account or purpose can be thought of, except that *it is an instinct intended to reduce their superabundant numbers*. And as to the Divine intention in *drowning* them, it appears as if drowning were Divinely considered to be the very easiest and surest form of death. In this connection we may very properly turn to the Holy Scriptures in our researches on this matter. They may be, by some, disregarded as an authority in scientific matters, but with others (including the writer) they are the highest authority, so far as they speak, on any subject they speak of.

In the Scriptures we find the following historical records in Exodus, chapter x, verses 12–21:

"And the Lord said unto Moses, Stretch out thine hand over "the land of Egypt for the locusts, that they may come up upon "the land of Egypt, and eat every herb of the land, even all that "the hail hath left. And Moses stretched forth his rod over the "land of Egypt, and the Lord brought an east wind upon the "land all that day, and all that night; and when it was morning, "the east wind brought the locusts. And the locusts went up "over all the land of Egypt, and rested in all the coasts of Egypt: "very grievous were they; before them there were no such locusts "as they, neither after them shall be such. For they covered

"the face of the whole earth, so that the land was darkened; and "they did eat every herb of the land, and all the fruit of the trees "which the hail had left: and there remained not any green thing "in the trees, or in the herbs of the field, through all the land of "Egypt. Then Pharaoh called for Moses and Aaron in haste; "and he said, I have sinned against the Lord your God, and "against you. Now therefore forgive, I pray thee, my sin only "this once, and intreat the Lord your God, that he may take "away from me this death only. And he went out from Pharaoh, "and intreated the Lord. And the Lord turned a mighty strong "west wind, which took away the locusts, and cast them into the "Red Sea; there remained NOT ONE locust in all the coasts of "Egypt. But the Lord hardened Pharaoh's heart, so that he "would not let the children of Israel go."

Here it is evident that it was the deliberate intention of the Divine Being to destroy the Locusts by drowning them in the Red Sea.

How the Divine Being thought best to proceed when desiring to cleanse the Earth, and why He did it, is shown clearly and unmistakably in Genesis, chapters vi and vii.

Chapter vi, vs. 5–18: "And God saw that the wickedness of "man was great in the earth, and that every imagination of the "thoughts of his heart was only evil continually. And it repented "the Lord that he had made man on the earth, and it grieved "him at his heart. And the Lord said, I will destroy man whom "I have created from the face of the earth; both man, and beast, "and the creeping thing, and the fowls of the air; for it repenteth "me that I have made them. But Noah found grace in the eyes "of the Lord These are the generations of Noah: Noah was "a just man and perfect in his generations, and Noah walked "with God. And Noah begat three sons, Shem, Ham, and "Japheth. The earth also was corrupt before God, and the earth "was filled with violence. And God looked upon the earth, and, "behold, it was corrupt; for all flesh had corrupted his way upon "the earth. And God said unto Noah, The end of all flesh is "come before me; for the earth is filled with violence through "them; and behold, I will destroy them with the earth. Make "thee an ark of gopher wood;" (etc. vs. 14–16). "And, behold, "I, even I, do bring a flood of waters upon the earth, *to destroy* "*all flesh*, wherein is the breath of life, from under heaven; and

"everything that is in the earth shall die. But with thee will I "establish my covenant; and thou shalt come into the ark, thou, "and thy sons" (etc. vs. 18–22).

Chapter vii (vs. 1–20, a specific account of the Flood), vs. 21–24: "And *all flesh died* that moved upon the earth, both of fowl, "and of cattle, and of beast, and of every creeping thing that "creepeth upon the earth, and *every man:* all in whose nostrils "was the breath of life, of all that was in the dry land, died. And "*every living* substance was destroyed which was upon the face "of the ground, both man, and cattle, and the creeping things, "and the fowl of the heaven; and they were destroyed from the "earth: and *Noah only remained alive*, and *they that were with* "*him in the ark.* And the waters prevailed upon the earth an "hundred and fifty days."

We see by these recorded cases that the Divine Being deliberately drowned the Human race in the Flood, and drowned the Locusts in the Red Sea, *just to get rid of them.* It was His way; simple in design and execution, and perfectly effectual. There was *not one* man *left*, except Noah and his family; and *not one* locust. It is probably impossible for any man to show, in more distinct words and language, the unmistakable and deliberate determination of the Divine Being to destroy the whole Human race on the earth, except Noah, who was spared for the reasons given in Genesis vi, 9–10. He destroyed all life "which was upon the face of the ground" (vii, 23), probably all life, animal and vegetable, excepting fresh water fishes, and those forms of vegetable life having their proper habitat in fresh water. His reasons for so doing, are also just as clearly and definitely given and recorded, as if done to justify Himself to His creature, man, in His course of action, as related in the history of the Flood.

To those who do not believe in God, nor in the Bible, nor the Flood, nor any other miracle, it might be a subject of interesting contemplation to consider the extraordinary action of the Norwegian Lemmings. It appears to me to be unaccountable on agnostic principles, so far as I understand them. There is here no "Survival of the Fittest" to hand down this sea-going suicidal propensity (or impulse, or instinct, or habit, or any other name that may be given to it) from generation to generation; all are destroyed, *not one* survives. There appears to be a kind of culmination of circumstances leading to the fatal termination of their

travels. These little creatures, apparently unconscious of their approaching disaster, go merrily on, crossing the waters of rivers and lakes, one after another, successfully and safely; and thus encouraged by their success and safety, plunge into the ocean, probably expecting successfully and safely to reach the other shore. But modern science has no account to give us of their arrival in Canada or these United States. *Not one* of them has successfully arrived on our side of the Atlantic in modern times.*

In conclusion, I look upon it as impossible to establish my foregoing Conjecture as a general Fact, by means of specific facts observed or recorded, and by reasonings thereon, viz.: that the Divine Being, desiring to dispose of, or get rid of superabundant animal life by means of drowning, endowed the Lemmings with *instincts, deliberately intended, for the specific purpose of thinning them out* in that way. The immense congregations of Butterflies may, in some way, have the same intention of thinning out their superabundant numbers. I may say, however, that such a conjecture appears to me to be probable, yet also, that it is *only conjecture*, and must always remain to be such to the end of time.

There is no end to conjecture; too much of it is not profitable and is unsatisfying. Its real use is to stimulate research, and observation, and reflection. Conjectures are boundless in their nature, and can only be established as facts, or errors, by patient and intelligent research.

The writer would be glad to have the opinions of any readers of ENTOMOLOGICAL NEWS on this subject, with any facts that have influenced their conclusions; not as matters of disputation or contention, but for the true advancement of science, and to increase our knowledge of Nature.

* The presence of Lemmings in the northern part of North America, of species different from those now in Norway, seems to indicate that in remote ages, such a condition of things existed as to climate, as enabled the Lemmings to pass westward from Norway to America. It is believed by some scientists that, in the remote past, Greenland and other north polar regions had a climate different from its present glacial character. Later researches have discovered fossil remains of trees, etc., with forms now belonging to the temperate and tropical zones of the earth. It may be that the species of Lemmings, now in North America, are descendents of those who passed from one continent to the other in those remote times when the differences of climate made such a passage possible to them.

A recent importation of orange trees into California from Tahiti showed them to be infested by a new insect, and the authorities will not allow them to be landed.—(*Newspaper Entomology.*)

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

NOTICE.—Those who wish to continue their subscriptions to **Entomological News** for the coming year, will please indicate their desire to the Treasurer (see second page of cover) **before** January 1st, next. The price will be the same—**One Dollar.** We hope to make volume 3 even better than 2, and trust that our readers will do what they can to help up do so.—ED.

Homohadena infixa (Walker).—The genus *Homohadena*, distinguished from the Hadenæ (*Hadena*, *Luperina* and *Hylophasia*) by having no abdominal tufts, revised by Prof. J. B. Smith (Proc. U. S. Nat. Mus. vol. xiii, pp. 397–405) in 1891, and having for its type *H. badistriga* Grote, affords an unrecorded synonymy. *Hadena infixa* Walk. and *H. incomitata* Harvey were described from rubbed specimens, hence their identity with *badistriga* was not recognized. The species occurs at Hartford, Conn., and throughout the region east of the Great Plains.

Homohadena infixa (Walk.)

Hadena infixa Walker.

Homohadena incomitata Harvey.

Homohadena badistriga Grote (unrubbed variety).

WM. HAMPTON PATTON, Hartford, Conn.

WHILE collecting near Knoxville, Tenn., on the 4th of last July, and also later during the same month I took winged specimens (both ♂ and ♀) of *Stephania picta*. Previous to this but a single winged specimen (a ♀) of this Hemipter has been recorded (by Uhler, in "Standard Natural History"). In addition to the full-winged form, there occurred in still greater numbers a short-winged form; the thorax of this had same structure as full-winged form (see "Standard Nat. Hist."). I shall be glad to correspond with hemipterologists concerning this and other rarities, and regarding exchanges.

H. E. SUMMERS, 71 N. Water St., Rochester, N. Y.

CAUSE OF PEACH YELLOWS.—What renders the peach-tree susceptible to the bacterium present in the disease known as the "yellows" is probably the mite (*Bryobia pratensis* Garman; for description see "Insect Life," vol. iii, No. 2, fig. 4, September, 1890, p. 47) which attacks the tree in countless numbers, thus lessening its vitality and causing the foliage to change color. This mite I found to be very plenty in Connecticut in 1883.

Its orange-colored eggs cover the bark in Winter, especially about the buds, ready to hatch with the opening of the leaves in Spring. Grafts of these buds would thus inoculate other trees. The Yellows Mite would be an appropriate name.—Wm. Hampton Patton, Hartford, Conn.

Amphion nessus appeared long in advance of the blossoming of Blue Flag—*Iris versicolor;* this year at least. During a very hot, Summer-like spell of weather late in April, one of my friends, who missed me leaving for the suburbs on a Sunday's collecting tour, saw two specimens of *A. nessus* feeding on the flowers of the lovely Mountain Pink—*Silene pennsylvanica*, which covers the rocky ledges of the open forest. This Wild Pink usually blossoms in this vicinity from the last week of April until the middle of May. My friend being provided with only a cyanide bottle for mothing, could not take any of the specimens seen on that day. From the last week of May until after the middle of following month I watched in vain for the appearance of this Sphingid on the flowers of Blue Flag.—Richard E. Kunze, M.D.

While summering in the Nutmeg State this year a friend of mine found insects very plentiful; some kinds rather too plentiful, in fact. He used to sit up nights and catch them. Some of them came in at the window, and some didn't. Thereby hangs a tale. At first he was mad, then grew sad, and finally glad; his heart was filled with ghoulish glee—he caught every blessed one he could find and preserved the reeking carcasses as ghastly trophies of his sojourn in the land. They were of all sizes, ages and complexions, from the pallid infant to the ruddy sire and gory grandsire, and he smiled with joy (?) at the goodly array. This experience led to the preparation of the following placard, which, with its accompanying specimen (a fine, plump one), was posted, at his departure, on the wall of the room he had occupied, and there left for the edification of the landlady. It is to be hoped that her feelings were not so severely injured as to disable her from improving matters for the next comer.

Locality, ———, Conn.
Date, Aug. —, 1891.
Number of specimens, 39.

Classification.—Type, Arthropoda.
Class, Insecta.
Order, Hemiptera.
Suborder, Heteroptera.
Family, Acanthiidæ.
Genus, *Acanthia.*
Species, *lectularia.*
Scientific name, *Acanthia lectularia.*
Common name, BEDBUG.

Habits.—This degraded bug inhabits (too many of) the sleeping apartments of the human species. Secreting itself by day, it sallies forth at night to feast upon the blood of the unwary traveler and luckless lodger.

Its appetite is always keen, and although it has been known to live a year without food, it prefers to take nourishment oftener, a proceeding which usually provokes the following, or similar

Remarks: Ow! Ugh! Whew! . . . . By Jove! . . . . Great Scott! . . . . Gosh darn it all! . . . .

A true history of the above specimen.—X. Y. Z.

New Food-plants of *Parasa chloris*.—While searching for larvæ of *S. astylus* on Huckleberry bushes in Bergen County, N. J., I found, Sept. 20, 1891, two larvæ of *P. chloris* on one leaf of the Swamp Blueberry—*Vaccinium corymbosum*. Another I took from the downy, or different-leaved Poplar—*Populus heterophyllus*, young plants of which grew near the same swamp. These are not mentioned in Mr. Wm. Beutenmüller's "Catalogue of Lepidoptera, etc., with their Food-plants." Another larva of *Parasa chloris* fed on Wild Cherry. Still another of the same genus, if not species, I found on Black Willow—*Salix nigra*. The latter larva had orange stripes and fleshy tubercles in the place of the usual red markings. It was parasitized and subsequently died. Strangest of all was the behavior of these larvæ in the breeding-cage, in which I also had some of *Limacodes scapha* feeding on Bayberry—*Myrica cerifera*, and another to me, unknown larva, on White Birch. In turn, *P. chloris* would feed on the plants they were found on, and again they remained for days on the other plants of the breeding-cage, feeding and thriving thereon. One has now been feeding eleven days, two pupated on the underside of leaves and two died of parasites. Was it not strange that they should go alternately on Downy Poplar, Wild Cherry, Bayberry, White Birch, Black Willow and Swamp Willow? I had them in a large glass-jar on my office desk, where I watched them by day and night. Downy Poplar is likewise known as Eastern Cottonwood.—Richard E. Kunze, M.D.

There are exceptions.—"A beetle cannot fly with its elytra removed." F. H. Wenham, Aerial Locomotion, Smithsonian Report 1889, p. 318. A few days ago along a sunny river-bank I found *Cicindela hirticollis* abundant. Examples were taken and the elytra removed; every one flew away instantly, on being released, with a speed that defied the eye to follow.

"Insects are killed quickly by putting them into a bottle containing lumps of cyanide of potassium covered by plaster of Paris." So every body says. To this I note three exceptional cases. One June day I happened to be collecting where many species of Phalænidæ were abundant. Examples of several species taken were all killed quickly in my cyanide bottle except one, that of *Corycia vestaliata* (sex not noted). To my surprise it was found some time after its imprisonment alive and struggling to escape. To test the matter other moths were put into the bottle, all of which were quickly overcome, but *C. vestaliata* still lingered, having withstood the fumes more than an hour.

The second instance is similar; the species was *Caberodes confusaria*. It was active more than thirty minutes by the watch, and, to make it sure,

the prisoner was resisting death, contrary to all reason, crickets, grasshoppers, wasps, moths and butterflies introduced to the same space, all responded as they should. The third case occurred a few weeks since the same species as the preceding with similar behavior.

Have others observed similar behavior by any insect? What explanation occurs to any one?—D. S. KELLICOTT.

Danais archippus.—Sunday, September 6th, present year, I went after Catocala. It was a showery day and did not go beyond our suburbs. Only one specimen was seen in a fine grove, but not taken. While examining trees, a boy, who stood watching me, called my attention to a *Danaid* circling overhead in a near-by place. Presently it flew and settled on the twig of a dead branch on one of the lowermost limbs of an *Acer rubra*. I told the boy to watch it for me, which he did, and inform me of its movements. A thunderstorm could be heard at a distance. It was about 1 P.M., and on its approach the *Danaid* took refuge in the foliage of a Liquidambar. That maple had only a very few scattered *red* leaves among its foliage, and the insect hung on that branch exactly half an hour until aroused by thunder.—RICHARD E. KUNZE, M.D.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Insects have been named for F. L. Harvey, H. C. Denslow, J. H. Bomberger, C. P. Gillette.

Entomological Literature.

THE TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, pt. 3, 1891.—On a new species of *Prothœ*, by Philip Crowley (illustrated). Notes on the Orthopterous family Mecopodidæ, by W. F. Kirby. Note on *Siphonophora artocarpi* Westw., by J. O. Westwood. On the South American species of *Diabrotica*, pt. 2, by Chas. J. Gahan.

BIOLOGIA CENTRALI-AMERICANA: pt. 94, July, 1891.—Coleoptera: vol. ii, pt. 1, by D. Sharp, pl. 11; vol. iv, pt. 2, by G. C. Champion, pp. 257–314, pl. 11; vol. vi, pt. 1, suppl., by M. Jacoby, pp. 265–272. Lepidoptera-Heterocera, by H. Druce, vol. i, pls. 28, 29; vol. ii, pp. 1–5, pt. 95, September, 1891. Coleoptera: vol. ii, pt. 1, by D. Sharp, pp. 385–432; vol. iv, pt. 2, by G. C. Champion, pls. 12, 13; vol. vi, pt. 1, suppl., by M. Jacoby, pl. 41. Lepidoptera-Heterocera, by H. Druce, vol. i, pls. 40, 41.

Journal of the Bombay Natural History Society vol. vi, No. 2. —The Butterflies of the Central Provinces, pt. 4, by J. A. B. Agricultural Entomology, by E. C. Coates. The Locust of North-western India (*Acridium peregrinum*) with plate, by E. C. Coates.

Transactions of the American Entomological Society, vol. xviii, Nos. 2 and 3.—Notes on some Noctuidæ, with Descriptions of New Genera and Species, by John B. Smith. On the Species of Trypoxylon Inhabiting America North of Mexico, by Wm. J. Fox. A Revision of the Species of *Euclea*, *Parasa* and *Packardia*, with Notes on *Adoneta*, *Monoleuca* and *Varina ornata* Neum., by H. G. Dyar. Revision of the Donaciæ of Boreal America, by C. W. Leng. Revision of the Genera and Species of Anthonomini Inhabiting North America, by W. G. Dietz, M.D.

Lepidoptera Indica, by F. Moore, F. Z. S , pt. 7.—This contains descriptions of the remainder of the Euplœinæ and the beginning of the Satyrinæ, with seven colored plates and about forty figures.

West American Scientist, September, 1891.—New Bombylidæ of the group Paracosmus, by D. W. Coquillett. *Amphicosmus* nov. gen. *A. elegans* n. sp. *Metacosmus* nov. gen.; *M. exilis* n sp. *Paracosmus insolens* n. sp. October, 1891, Revision of the Bombylid Genus *Aphœbantus*. An interesting and useful table for the determination of the species is given and the following new species in the genus described: *A. varius*, *A. tardus*, *A. marcidus*, *A. mixtus*, *A. interruptus*, *A. scriptus*, *A. desertus*, *A. capax*, *A. abnormis*, *A. fumidus*, *A. brevistylus*.

Revue Biologique du Nord de la France, 4e Annee, No. 1, October, 1891.—The Hymenopterocecids of the Willow, by Dr. H. Focken.

Studi della Regia Stazione di Entomologia Agraria di Firenze, 1891.—April, 15, New Insecticide Emulsions, by A. Targioni-Tozzetti and Dr. G. del Guercio. June 28, Experiments undertaken to determine the endurance of young vegetables against the action of various mixed insecticides, id. July 16, On the resistance to insecticides by the tender shoots and fruits of the Appie, Pear, Plum, Peach, Lemon and Celastrus in the struggle against noxious Lepidoptera and Aphids, id.

L'Auxiliare de l'Apiculteur, September, 1891, Amiens.—General ideas on the nature and physiology of the Bee, by Abbe Ulivi. Some parasites on the front of the head of bees, by A. Teynac.

Anales de la Sociedad Cientifica Argentina, xxxii, 3, September, 1891.—Dipterologia Argentina (Syrphidæ), continued,* by F. L. Arribalzaga.

Animali ed Insetti del Tabacco in Erba e del Tabacco Secco di Ad. Targioni-Tozzetti, Direttore della R. Stanzione di Entomologia Agraria di Firenze. Firenze, Roma, 1891. Pp. lxiv, 347, 100 text figures, 3 lithographic plates.

* Contains new species other than North American.

Annali del Museo Civico di Storia Naturale di Genova, Serie 2, vii, 1889-90.—Expedition to Assab on the Red Sea of G. Doria and O. Beccari in the "Esploratore" from Nov. 16, 1879, to February 26th;* iv. Coleoptera, by R. Gestro. Expedition of Leonardo Fea in Burmah and the neighboring region; xv. First studies on *Cicindela*,* by R. Gestro; xvi. On some Carabidæ,*† by H. W. Bates; xvii. List of the Phytophagous Coleoptera,*† by M. Jacoby; xx. Formicidæ, by C. Emery, 2 plates; xxi. Arachnida Arthrogastri, by T. Thorell, 1 pl.; xxii. Aradidæ, by E. Bergroth, 1 plate. On some Cetonids collected by Dr. Elio Modigliani on the west coast of Sumatra,* by R. Gestro. Description of new species of Histeridæ,* by J. Schmidt. Enumeration of the Haliplidæ, Dytiscidæ and Gyrinidæ, collected by Prof. L. Balzan in South America,* by M. Regimbart. New or little-known Lycidæ from the Museo Civico di Genova,* second memoir, first part, by J. Bourgeois. List of the Phytophagous Coleoptera collected by Signor Modigliani at Nias and Sumatra, with descriptions of the new species,*† by M. Jacoby. Three new Silphidæ from Italy,* by E. Reitter. On some Italian cave-dwelling Myriapoda collected by Sig. A. Vacca and R. Barberi,* by R. Latzel. On some Formicidæ of the Palaearctic fauna,* by C. Emery. Odonata of Sumatra, comprising the species collected at Pulo Nias by Dr. E. Modigliani,*† by E. de Selys-Longchamps—viii. 1889-90, Studies on Malaysian and Papuan Spiders: Part iv. Spiders of Indo-Malaysia collected by O. Beccari, G. Doria, H. Forbes, J. G. H. Kinberg and others,*† by T. Thorell.—ix. 1889-90, Res Ligusticæ; xi. Contributions to our knowledge of the Chilopoda of Liguria,* by R. I. Pocock. Three new species of *Zephronia* from the Oriental region,* id. Descriptions of two new species of Malachiidæ,* by E. Abeille de Perrin. Expedition of Leonardo Fea in Burmah and the surrounding region: xxiii. Nitidulidæ,* by A. Grouvelle. Description of a new species of Cucujid belonging to the Museo Civico di Genova,* id. Revision of the Pseudoscorpions of the basins of the Parana and Paraguay Rivers in South America, by L. Balzan;*† 5 plates. Hymenoptera of Syria collected by Augusto Medana, Italian Consul at Tripoli in Syria, with descriptions of some new species,* by P. Magretti.

Revue Scientifique du Bourbonnais, etc., iv, 10, October, 1891.—The fossil insects of Commentry, by E. Olivier; 1 plate.

Le Naturaliste (Paris), Oct. 15, 1891.—Descriptions of new Lepidoptera,* by P. Dognin. Description of the caterpillar of *Spilodes verticalis* L., by P. Chretien.

Entomologische Nachrichten (Berlin), xvii, 20, October, 1891.—Eight new Aeschnidæ, by Dr. F. Karsch; *Aeschna furcifera*, Mexico, n. sp. *Holomelia mirabilis*, a curiosity among Coleoptera,*† by E. Brenske. The Erichsonian coleopterous genera *Monotropus* and *Lasiopsis*, id. The genus *Perissoneura*, by R. MacLachlan.

* Contains new species other than North American. † Contains new genera.

Biologisches Centralblatt (Erlangen), Oct. 15, 1891.—On S. Exner's physiology of the facetted eyes in crabs and insects, by Herr Zacke.

Tijdschrift voor Entomologie (The Hague), xxxiii, 3, 4, 1890.—Catalogue of the Araneæ found in Holland, second supplement, by A. W. M. Van Hasselt. List of the Lepidoptera collected by Mr. H. B. Van Rhijn in Sumatra,* by P. C. T. Snellen. Some new Pediculini,* by E. Piaget; 3 plates. Remark on *Phyllopteryx elongata* Snell., by C. Ritsema Cz. Addition to the "Comparative Studies on Ant Guests and Termite Guests," by E. Wasmann. Remarks on Lepidoptera from the island of Tanah-Djampea near Celebes,* by P. C. T. Snellen; 1 plate. Remarks on Lepidoptera from the island of Belitoeng [near Sumatra],* id.; 1 plate. *Apogonia destructor* n. sp., by Dr. H. Bos; 2 plates. Some remarks on a study by Mr. David Sharp on the structure of the prosternum in the Rhynchophoridæ, by E. Everts; 1 plate. List of the spinners [Arachnids] collected by Dr. A. M. J. Bolsius at Soemenep in the island of Madura, by Dr. A. W. M. Van Hasselt.

Histoire Physique, Naturelle et Politique de Madagascar, publiee par Alfred Grandidier. Vol. xxii, Histoire Naturelle des Coleopteres, par M. Kunckel d'Herculais. Tome II—Atlas, 2e Partie. Paris, 1890; plates 26–54.

Entomologiske Meddelelser (Copenhagen), Tredie Bind, 1, 2, '91.—Catalogue of the Coleoptera of Denmark (Staphylinidæ, Part III), by F. Meinert. *Bembex rostrata*, its life and instincts, by C. Wesenberg-Lund. Notes on the entomological fauna of Greenland, by W. Lundbeck. On *Ibalia* Latr.,* by H. Borries. *Pediculus humanus* L., and its mouth-parts, by F. Meinert; 1 plate. Review of the Danish Chrysididæ, by H. Borries.

Bibliotheca Zoologica (Cassel), viii, 1, 1891.—Researches on mimicry as a basis for a natural system of Papilionidæ, by Dr. E. Hasse (to be continued). ix, 1891. Contributions to the knowledge of the Chilopods (glands, coxal organs, vascular system and visceral nerve system), by Dr. C. Herbst; 5 plates.

Doings of Societies.

The Entomological Society of Washington, Oct. 1, 1891.—The following persons were elected members of the Society: E. W. Doran, A. G. Nasius, F. C. Test. W. T. Swingle, active members; H. E. Weed, W. H. Harrington, E. A. Popenoe, corresponding members.

Mr. Heidemand exhibited some interesting new species of Capsidæ taken the past season on Red Cedar, Willow and Linden.

* Contains new species other than North American.

Mr. Ulke exhibited and remarked on the habits of a number of rare or new aquatic Coleoptera found by him the past Summer in the Blue Ridge Mountains, near Monterey, Md.

Mr. Ulke also exhibited a pale larviform female of a species of *Phengodes* which he found abundantly in the Blue Ridge Mountains, no males, however, being discovered. The species was thought, by Prof. Riley, to be *Ph. laticollis*, and the relative abundance of the males and females of *Phengodes* was discussed by Riley and others.

Mr. Schwarz exhibited specimens of *Emphylus americanus* taken by H. H. Hubbard and himself in a colony of *Formica sanguinea* near Alta, Utah, at an elevation of about 9000 feet.

Mr. Ashmead read a paper on the peculiar Chalcid genus *Melitobia* Westw., in which he discussed (1) its synonymy with *Anthophorabia* Newport, concluding that *Melitobia* should take precedence; (2) its structure and position in a classificatory system, deciding that it belongs to the subfamily Tetrastichinæ and not with the Elachistinæ, where it is now placed; and (3) its habits, recording the rearing of *M. megachilis* Pack. from *Megachile centuncularis* Linn., *M. pelopœi* Ashm. from *Celopœus cementaria* in Kansas by Prof. Popenoe and in Florida by himself; and a new species which he described as *M. chalybii*, bred from the cells of *Chalybeon cœruleum* taken in Maryland.

Discussed by Messrs. Howard, Theo. Gill, Riley, Schwarz and others.

Dr. Marx presented a paper entitled "Preliminary Notes on the Classification of the Ixodidæ," in which he discussed the views of previous authors on the classification of these parasites and concluded to accept with some modification the scheme of Koch as follows: Order, Acari; Suborder, Cynorhastes; Tribe I, Cetocari with families, Argasidæ and Eschætorephalidæ; Tribe II, Antiocari with families Hæmelastaridæ, Ixodidæ and Rhipistomidæ.

The paper also included generic synopses of the genera of the several families. The scheme differs from Koch's in adding one new family, and suppressing one genus and adding three new ones. The paper was discussed by Prof. Gill and others.

Mr. Howard read a note on the "Appearance of Mealy Bugs parasitized by Leptomastix," in which he referred to the habits of the species of this Encytrid genus of Chalcid parasites, and said that his attention had been recently called by Miss Sullivan to the curious fact that Mealy Bugs parasitized by *L. dactylopii* almost entirely lose their waxy secretion and swell up into yellow objects closely resembling dipterous puparia, which resemblance is heightened by the fact that the parasite in issuing cuts free a cap at the end of the scale just as the Dipterous insect forces off the end of its puparium. Discussed my Messrs. Riley, Ashmead and Howard.

Prof. Fernow gave a report on the results in Europe of the use of the new insect lime against *Psilura monacha* the use of which he stated had been a perfect success. He described the process of quarantining infested areas by surrounding them with poles which are then smeared with the

lime, and also various machines used to apply the lime to trees. Discussed by Prof. Riley and others.

Prof. Riley presented a paper entitled "A New Herbarium Pest," in which he described the transformations and habits of a small Geometrid moth (*Carphonera pelearia* nov. gen. et sp.) which, during the last two years, has seriously infested and damaged the herbarium specimens in the Botanical Division of the Agricultural Department. These larvæ were first noted on plants from the southwest United States, and have confined their work in the main to plants from that section, but are also spreading to eastern plants. A list of the particularly infested plants furnished by Mr. Dewey, of the Botanical Division, was given. A description of the insect, which is a new species and will require a new genus for its reception, was given, and figures of all stages were exhibited. Various means for the control of this pest were given (see "Insect Life," iv, Nos. 3 and 4).

Prof. Riley gave some additional notes on *Panchlora viridis*, in which he referred to the receipt of two additional specimens, one from Gustave Gutenberg, of Pittsburg, and the other from Carl Gissler, of Brooklyn. The first of these, shortly after capture, gave birth to a number of living young and afterwards extruded an imperfect egg-cluster including a number of unhatched eggs; and the other, on dissection, was found to contain a perfect egg-cluster with the young nearly mature and ready to emerge. This egg-cluster, which differs widely from that of the other roaches, was described and a figure of it exhibited.

Prof. Riley described the modifications of the abdomen in *Panchlora* which afforded the space necessary for the escape and pre-natal development of the young within the abdomen.

The enveloping egg-sac of other roaches was in this species reduced to a scarcely discernible pellicle, which did not cover the eggs entire, but was limited to the inner or concave half of the egg-mass (see "Insect Life," iv, Nos. 3 and 4).

C. L. MARLATT, *Recording Secretary.*

ERRATA.—Vol. II.

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ENTOMOLOGICAL NEWS for November was mailed October 29, 1891.

VOL. I. NO. 1.

Entomological News

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

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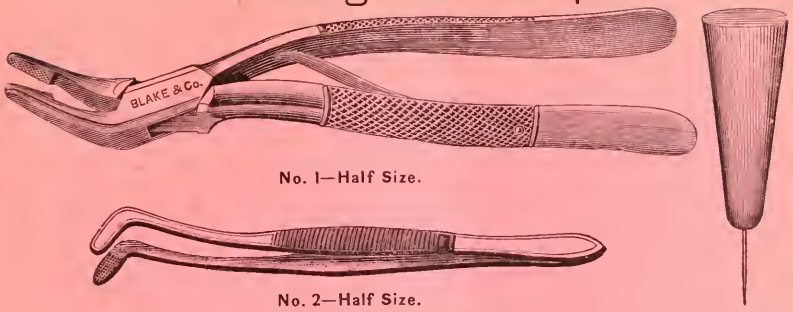

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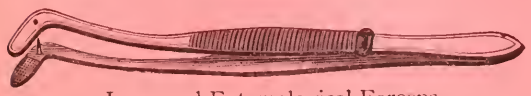

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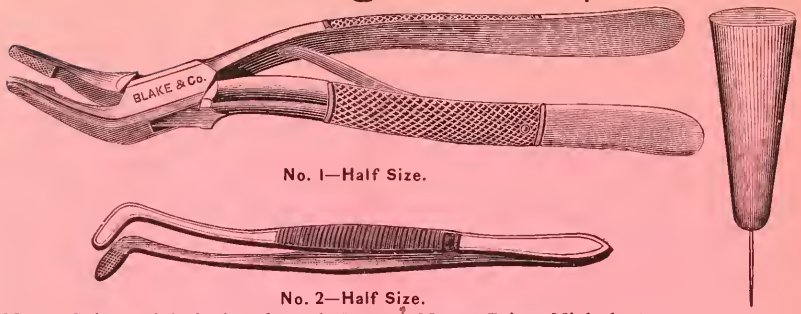

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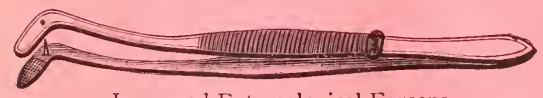

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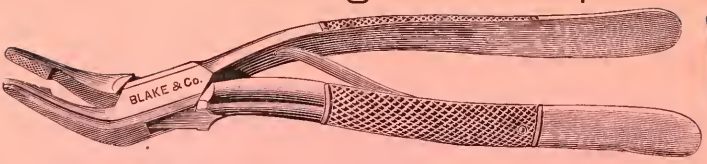

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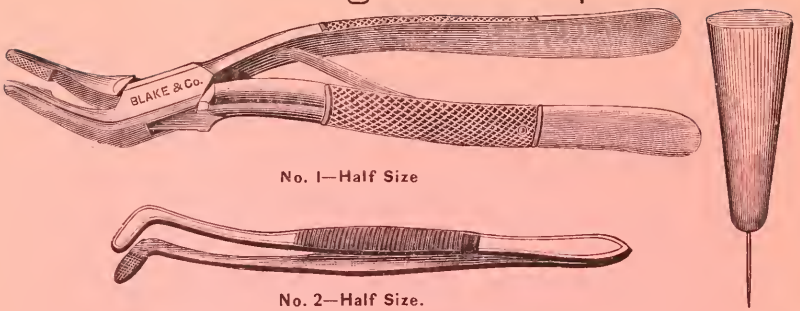

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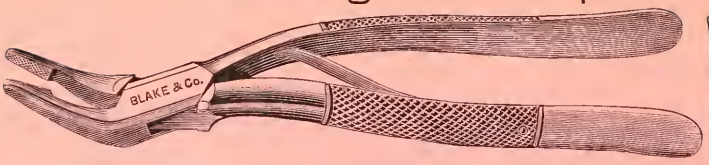

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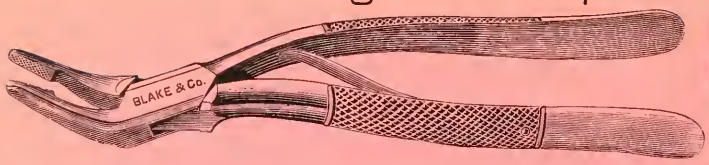

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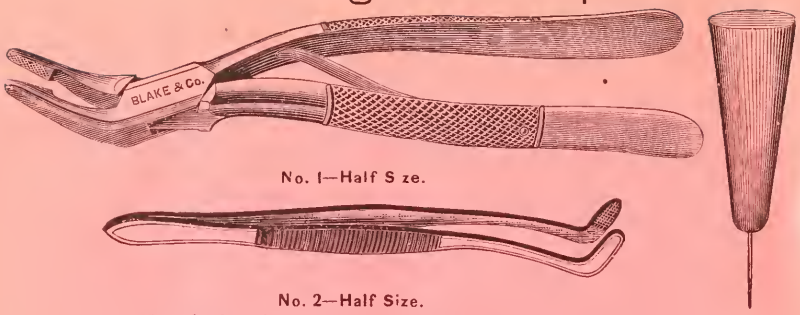

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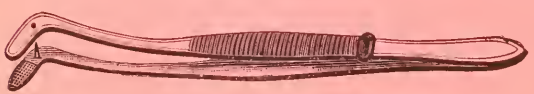

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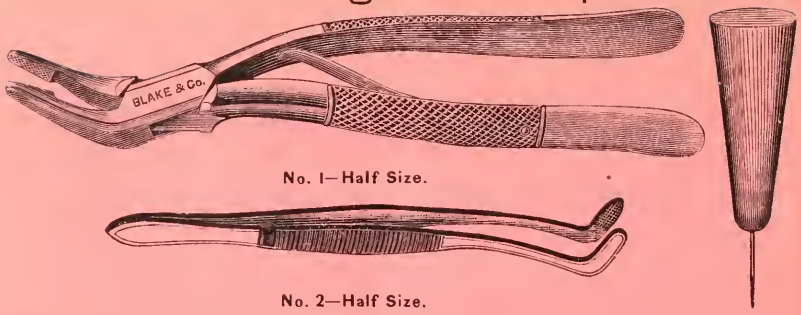

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VOL. I. NO. 9.

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NOVEMBER, 1890.

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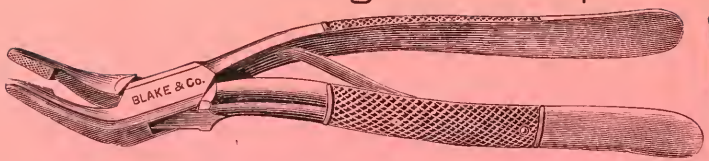

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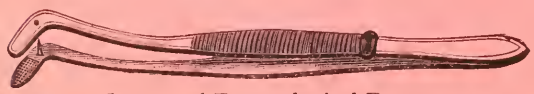

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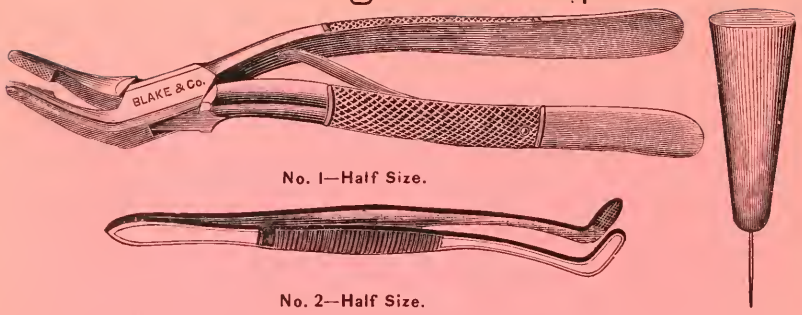

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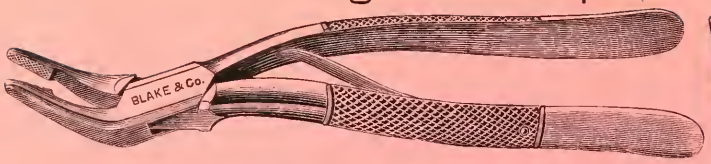

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VOL. II. NO. 2.

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OF

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FEBRUARY, 1891.

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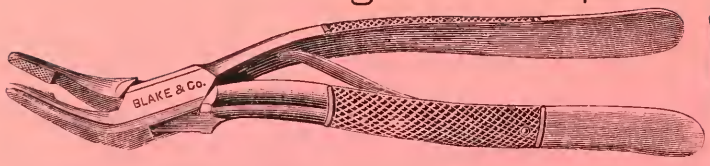

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MARCH, 1891.

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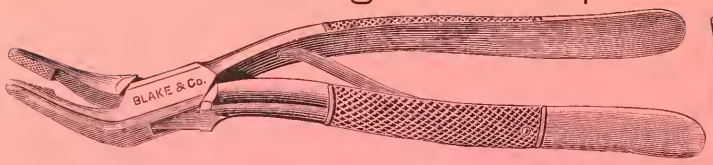

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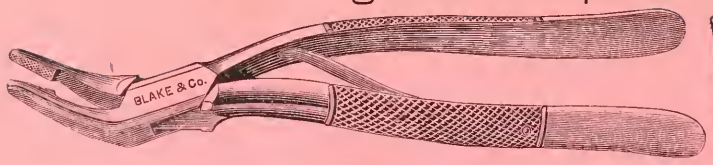

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VOL. II. NO. 5.

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MAY, 1891.

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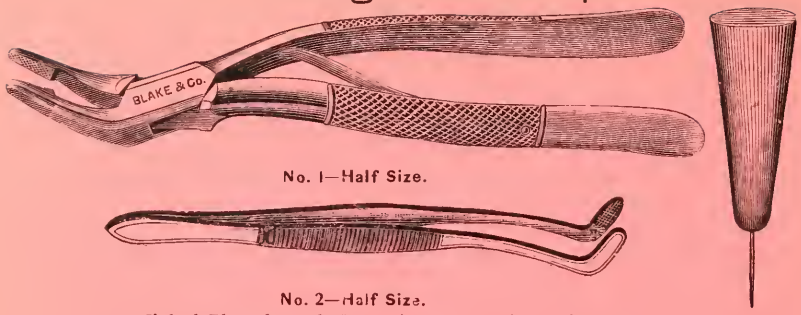

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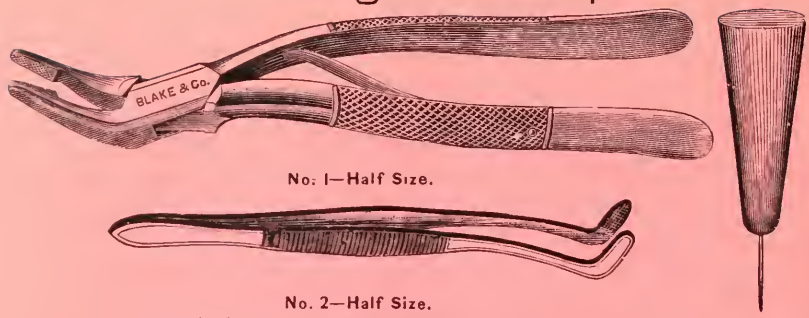

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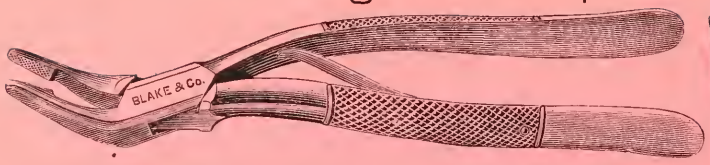

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VOL. II. NO. 8.

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AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

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OF

PHILADELPHIA.

OCTOBER, 1891.

EDITOR:
HENRY SKINNER, M. D.

ADVISORY COMMITTEE:

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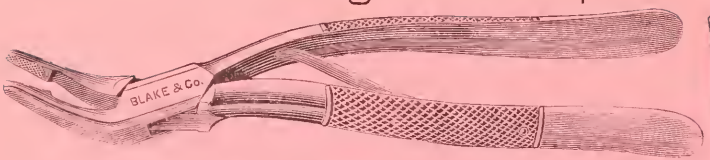

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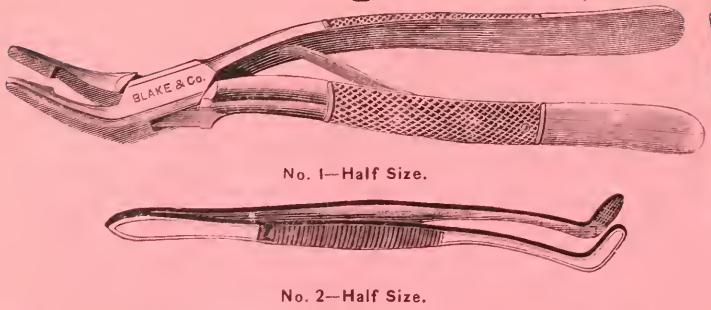

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VOL. II. NO. 10.

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DECEMBER, 1891.

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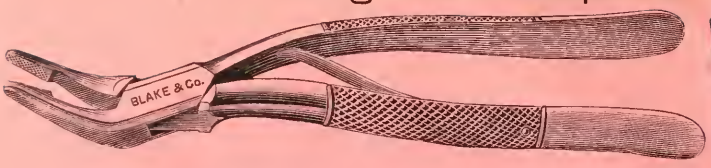

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